

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 e

3. Edition

En

PES 4 A 80 C 410 RS 2094

EP/RSV 300-1300 A1 B424 D (1) supersedes

6.70

EP/RSV 300-1400 A2 B424 D (2) company

Daimler-Benz

EP/RSV 250-1500 A2 B424 D (3) engine

OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,6 - 6,0	0,4			
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

EP/RSV 300-1300 A1 B424 D (1)

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control				
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11			
ca.73	1300	16,0	without auxiliary spring			ca.27	300	6,0	1280	0			
	1350	10,6											
	1390	4,6											
2a		1360	7,5-10,5	with auxiliary spring			100	19 - 21	900	0,4-0,6			
		1400	2,6- 5,6										
		1500	0,3- 1										
						450	1,4-3,6			400	1,2-1,4		
						600	0 - 1						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	55,0-57,0 54,0-58,0	1340-1350*	900 500	52,0-55,0 51,0-56,0 52,5-55,5 51,5-56,5	100	6,8-7,8	300	6,0
								./.

Checking values in brackets

* 1 mm less control rod travel than col 2

11.76

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B. Governor Settings

300-1400 A2 B424 D (2)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.57	1400	16,0	without auxiliary spring			ca.22	300	6,0	1380	0
	1460	12,0					100	19 - 21		
2a	1520	6,8	with auxiliary spring				300	5,7-6,3	500	0
	1500	6,8-10,0					500	1,8-3,9		
	1600	1,8- 4,3					700	0 - 1		
	1720	0,3- 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9		
1380	47,5 - 49,5 46,5 - 59,5	1440-1450*			100	6,8-7,8 5,8-8,8	300	6,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

250-1500 A2 B424 D (3)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.61	1500	16,0	without auxiliary spring			ca.21	250	6,0		
	1600	8,0					150	19 - 21		
2a	1630	5,6	with auxiliary spring				250	5,7-6,3		
	1610	5,6-8,8					500	0,8-3,6		
	1700	1,4-4,2					660	0 - 1		
	1800	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9		
1480	48,5 - 50,5 47,5 - 51,5	1540-1550*			100	6,8-7,8 5,8-8,8	250	6,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 1

3. Edition

En

PES 6 A 90 D 410 RS2293 RQV 300-1425 AB 919,920,925
RS2293Z RQV 300-1425 AB 919,920,925

supersedes 9.76
company Daimler-Benz
engine OM 352(130PS)
"Z"-OM 352A (168PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 mm (from BDC) $\begin{matrix} +0,15 \\ -0,05 \end{matrix}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,4			
	6	1,8 - 2,6				
200	12	7,3 - 8,3				
	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 28	1425 1500 1600 1650 1770	16,0-19,0 10,8-15,3 3,3-10,0 0 - 7,4 0	-	-	-	ca. 10	200 300 450 600 760	6,0-7,4 4,9-6,6 3,0-3,9 1,4-2,8 0	400 1425	1,2-2,2 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	61,0-63,0 59,5-64,5	1455 - 1465*			100	72,25-82,25 70,75-83,75	700	(919, 925)
"Z" 1400	73,5-75,5 72,0-81,0	1435-1445*					1300	(920)

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 3

1. Edition

En

PES 6 A 90 D 410 RS2293Z

RQV 300-1425 AB946L

supersedes MB5,7s(8.77)
company Daimler-Benz
engine 115kW (156PS)
OM 352..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,4			
	6 12	1,8 - 2,6 7,3 - 8,3				
200	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1425 1500 1550 1650 1790	16,0-19,4 11,6-16,0 8,2-13,4 1,4-8,0 0	-	-	-	ca. 10	100 300 450 600 760	6,6-7,8 4,9-6,4 3,0-4,2 1,3-2,8 0	400 1425	1,4-2,2 8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1410	0,4 bar 70,0-72,0 68,5-73,5	1440-1450*	LDA 1410 500	0 bar 59,5-62,5 57,5-64,0 41,0-45,0 39,5-46,5	100 100	13,7-14,3 220(80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.77

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 h

3. Edition

En

PES6A80C410RS2194, 2085 RQV300-1425AB620D, 625D (1)
 RS2194, 2085 AB628D, 629D (2)
 RS2194V, 2085V AB625D (3)
 RS2194, 2085 AB657D (4)

supersedes DAI5,7h-1.68
 company Daimler-Benz
 engine (1-110kW-150PS)
 OM 352 (2- 93kW-126PS)
 (3-115kW-156PS)
 (4- 96kW-130PS)

..D..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
 $(2,10-2,30)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
200	6	2,2 - 3,0				
	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

620D, 625D (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425	16,0-19,4				ca. 10	200	6,0-7,4	1425	8,3
	1550	8,2-13,4					400	3,5-5,2		
	1650	1,4- 8,0					460	2,7-3,8	1425	0
	1700	0 - 5,2					600	1,4-2,8	600	0,4-0,6
	1790	0					770	0		

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) 1400	66,0 - 68,0 65,0 - 69,0	1455-1465*	1000 800 500	60,5-63,5 61,5-64,5 56,5-60,0	100	72,5-82,5	700 1300	(620D) (625D)
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1425 1550 1650 1700 1790	16,0-19,4 8,2-13,4 1,4- 8,0 0 - 5,2 0	-	-	-	ca.10	200 400 480 600 770	6,0-7,4 3,5-5,2 2,7-3,8 1,4-2,8 0	1425 1425 600	8,3 0 0,7-0,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1400	56,0-58,0	1455-1465	1000 800 500	53,5-56,5 52,0-55,0 49,5-52,5	100	72,5-82,5	700	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

V mit 625 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1425 1550 1650 1700 1790	16,0-19,4 8,2-13,4 1,4- 8,0 0 - 5,2 0	-	-	-	ca.10	200 400 480 600 770	6,0-7,4 3,5-5,2 2,7-3,8 1,4-2,8 0	1425 1425 600	8,3 0 0,4-0,6

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1400	70,5-72,5	1455-1465*	1000 800 500	64,0-67,0 63,0-66,0 59,0-63,0	100	72,5-82,5	1300	

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425 1550 1650 1700 1790	16,0-19,4 8,2-13,4 1,4- 8,0 0- 5,2 0	-	-	-	ca. 10	200 400 480 600 770	6,0-7,4 3,5-5,2 2,7-3,8 1,4-2,8	1425 600	8,3 0 0,8-1,0

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(4) 1400	58,0-60,0	1455-1465*	1000 800 500	55,1-58,0 56,5-59,5 51,5-54,5	100	72,5-82,5		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 MB 3,8 f

3. Edition

En

PES 4 A 80 C 410 RS2094Z	EP/RSV 350-1425 A2 B1008D (1)	supersedes	12.75
2094Z	EP/RSV 350-1275 A2 B 242D (2)	company	Daimler-Benz
2094Z	EP/RSV 350-1200 A2 B1004D (3)	engine	OM 314
.. D .. 1106Z	EP/RSV 350-1425 A2 B1008D (1)		(1- 80 PS) (2- 54 PS) (3-MB-Trac 65 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,8	0,3			
	6	1,8 - 2,6				
200	15	10,3 - 11,6				
	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

350-1425 A2B1008D (1)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca. 60	1425	16,0	without auxiliary spring			ca. 22	350	7,0	1400	0
	1500	11,5					200	19 - 21		
	1560	6,6	350	6,7-7,3	700		0			
	1520	8,8-11,0	600	2,3-4,6	450		0,6-0,8			
②a	1600	4,0- 5,9	with auxiliary spring			870	0 - 1			
	1800	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1400	1440-1455*	700	51,0-54,0	100	72,5-82,5				
		500	50,5-54,5		72,0-83,0				
			50,0-53,0						
			49,5-52,5						

Checking values in brackets

* 1 mm less control rod travel than col 2

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The numbers denote the sequence of the tests

B. Governor Settings

350-1275 A2B242D (2)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 54	1275	16,0	without auxiliary spring			ca. 22	350	7,5	1275	0
	1350	11,4					200	19 - 21		
	1420	6,2					350	7,2-7,8		
②a	1380	7,8-10,2	with auxiliary spring				600	2,9-5,2	1000	0,2-0,4
	1500	2,6-4,8					900	0 - 1	400	1,1-1,3
	1680	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)											
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
(2)											
1250	44,5 - 46,5	1300-1310*	1000	43,5-46,5	100	72,5-82,5					
			800	42,0-45,0							
			500	41,0-44,0							
**											

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

350-1200 A2B10004D (3)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 44	1200	16,0	without auxiliary spring			ca. 15	350	6,0	1200	0
	1250	10,7					200	19 - 21		
	1300	4,8					350	5,7-6,3		
②a	1200	ca. 8,5	with auxiliary spring				600	1,8-3,8	500	0,8-1,0
	1300	ca. 3,2					850	0		
	1450	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)											
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
(3)											
1200	47,5 - 49,5	1220-1235*	1000	46,5 - 49,5	100	72,5-82,5					
			500	42,5 - 45,5							
**	Increase by ± 0,5 cm³!										

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 k

1. Edition

En

PES 4 A 90 D 410 RS2294

EP/RSV 750-1400 A0B795DL

supersedes

company

engine

Daimler-Benz
OM 314
(Generator -90PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 5,0	0,3(0,45)			
	6 12	1,8 - 2,6 7,3 - 8,2				
200	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 51	1330 1380 1440	15,8 10,7 3,3	without auxiliary spring			ca. 30	750	6,0	1380	0
2a	1385 1440 1500	ca. 9,7 ca. 3,6 0,3-1,7				100 750 820	mind. 19 5,7-6,3 0 - 1	450		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop		
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1345	71,5 - 72,5 (69,5 - 74,5)	1385-1390*			100	84,25-91,25		
				1435-1440 = 3,6mmRW		750	20,25-26,25		

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.76

B10

B.10

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 MB 3,8 h

2. Edition

En

PES 4 A 90 D 410 RS 2294 EP/RSV 350-1000 A1 B 585 D (1) supersedes company
350-1300 A2 B 1033 (2) engine

9.73
Daimler-Benz
OM 314
(64 PS - 1)
(75 PS - 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,5 - 5,0	0,4			
	6 12	1,8 - 2,6 7,3 - 8,2				
200	9	2,0 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

350-1000 A1 B585D (1)

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
ca. 45	1000	16,0	without auxiliary spring			ca. 16	300	7,3	980	0
	1020	12,0					200	19 - 21		
	1040	7,0	with auxiliary spring				300	7,0-7,6	600	0,5-0,7
	1030	8,0-10,5					450	1,5-4,3		
	1060	4,4- 6,0					600	0 - 1		
②a	1180	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
980	56,0-58,0	1025-1035*	500	50,0-53,0	100	ca. 7,9	300	7,3
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11.75

B20

B20

350-1300 A2 B 1033 (2)

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.55	1300 1380 1430	16,0 10,9 7,3	without auxiliary spring			ca.23	350	7,5	1280	0
2a	1400	8,5-10,5				with auxiliary spring			200	19 - 21
	1450	4,0- 7,3	350	7,2-7,8						
	1600	0,3- 1,0	450	3,2-5,2						
						600	0 - 1			

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1300	63,0 - 65,0	1325-1335*			100	ca.7,9	Set intermediate speed stop 600 min ⁻¹	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 a 1

1. Edition

En

PES 5 A 95 D 410 LS 2426

RQV 250-1150 AB 956 L (1)

supersedes

RQV 750 AB 955 L (2-3)

company MAN

RQV 1050 ABV12865 (4)

engine D 2555 MXE

RQV 250-1050 ABV12912 (5)

(192 PS - 1)

(121 PS - 2)

(133 PS - 3)

(165 PS - 4-5)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3+0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
200	6	3,2 - 4,2				
		6	0,5 - 1,4			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV..956 L (1)

Upper rated speed			intermediate rated speed			Lower rated speed			Sliding sleeve travel ①		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min mm 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min mm 8	Control rod travel mm ③	rev/min mm 10	mm 11
ca. 50	1100 1150 1200 1260	13,2-16,2 7,2-12,2 1,0 - 8,0 0		-	-	-	ca. 10	100 250 350 450	9,1-11,0 5,8-8,3 1,6-4,5 0	450 1100	2,4-3,0 8,7
							③a			-	-

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150 (1)	117,5 - 119,5	1190-1205*				100	149,0 - 159,0		
						Switching point 180 - 100 min ⁻¹			

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.77

C12

C42

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RQV..955 L (2 - 3)

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 29	725 750 770 800	16,0-22,0 9,3-10,8 2,5-11,0	-	-	-	-	-	-	750	4,6
									-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 725	98,5-100,5	765-770 *						
(3) 725	111,5-113,5	765-770*						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 36	1000 1025 1050 1110	16,4-22,6 12,5-17,0 8,0-11,4 0							1050	5,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(4) 1050	104,5-106,5	1060						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1100 1150 1200 1260	12,2-16,2 7,2-12,2 1,0-8,0 0	-	-	-	ca. 10	100 250 350 450	7,0-11,0 5,8-8,4 1,6-4,5 0	250 800 1100	0,6-1,2 4,8-5,2 8,7 -

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(5) 1050	104,5-106,5	1060						

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,7 q

1. Edition

En

PES 6 A 95 D 410 RS2108

RQV 250-1100 AB905DL (1)

supersedes

RS2108Y

RQV 250-1100 AB905DL (2)

compared A N

engine D 2156 (1)

D 2356 HM/HMN (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,4	0,5			
	6 15	4,0 - 5,0 16,6 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..905DL + 2108 (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①				
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	③	rev/min 10	mm 11
ca. 50	1140	14,4-17,6	-	-	-	-	-	ca. 13	100	7,5-10,2	③a	200	0,5-1,2
	1200	4,0-10,6							200	5,7-8,5		600	3,8-4,1
	1220	0 - 8							300	2,5-5,3		1140	8,3
	1300	0 - 1							410	0		-	-

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b	Starting fuel delivery idle switching point mm control-rod travel ⑥	Torque-control travel ⑤				
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	mm 7	rev/min 8	Control rod travel mm 9
1100	123,5-125,5	1140-1155*	500	max. 119,5	100	mind. 18 To be specified by customer	250	7,0	
20 ⁰ 1100	126,5-128,5	1140-1155*	500	max. 122,5	Change-over point 100-180 min ⁻¹				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.76

Testoil-ISO 4113

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C15

GAS

B. Governor Settings

..905DL + 2108Y

MAN 9,7 q -2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140 1200 1220 1300	14,4-17,6 4,0-10,6 0 - 8 0 - 1	-	-	-	ca. 13	100 200 300 410	7,5-10,2 5,7-8,5 2,5-5,3 0	200 600 1140	0,5-1,2 3,8-4,1 8,3
						(3a)			-	-

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm control-rod travel	rev/min Control rod travel mm
1	2	3	4	5	6	7	8 9
1100	108,5-110,5	1140-1155*	500	max. 104,0	100 250	mind. 18To 7,0 by	be specified customer
20 ⁰ 1100	111,5-113,5	1140-1155*	500	max. 107,0	Change-over point 100-180 min ⁻¹		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min Control rod travel mm
1	2	3	4	5	6	7	8 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 h

1. Edition

En

PES 5 A 95 D 410 LS 2445 RQ 250/1050 AB 894 DL (1)
 LS 2445 RQ 250/1150 AB 839 DL (2)
 LS 2445 Z RQ 250/1150 AB 839 DL (3)

supersedes
 company: MAN
 D 2555MXUM
 engine: MXUH
 (1/3-175 PS)
 (2-192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,6 - 8,0	0,4			
200	6	3,2 - 4,2				
		6	0,5 - 1,4			

Adjust the fuel delivery from each outlet according to the values in

RQ...894 DL (1)

B. Governor Settings

Testoil-ISO 4113

Checking of slider PF&G check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel mm 12				
600	15,6-16,4	600	16,0	1070	14,8-15,2	540	0	100	7,2-8,0	800	15,6-16,0
				1100	15,2-15,6			250	4,8-7,0	1000	15,0-15,4
				1140	0 - 8,8			350	1,6-4,0		
				1210	0 - 1,5			440	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1090 - 1105 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ -1000 strokes 2	Control rod stop mm 3a	cm ³ -1000 strokes 5	Control rod stop mm 3b	cm ³ -1000 strokes 7	Control rod stop mm 3c	Control rod stop mm 3d	Control rod stop mm 3e
1050	108,5 - 110,5			800	112,0 - 114,0	100	149,0 - 159,0
				500	max. 114,5		
1050 20° (increase by ± 2,0 cm ³ !)	110,5 - 112,5			800	113,5 - 116,5	250	7,0 mm RW
				500	max. 116,5		

Checking values in brackets

B. Governor Settings

RQ...839 DL (2)

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1180 1200 1240 1350	15,0-15,6 10,0-14,2 2,0-8,8 0	540	0	100 250 350 440	7,0-8,0 4,6-6,8 1,6-4,0 0	900 1000	15,8-16,0 15,6-15,8

Torque-control travel on flyweight assembly dimension a = $0,2$ mm Speed regulation At $1190-1205$ = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1150	114,5 - 116,5		800 500	115,0 - 118,0 max. 116,5	100 250	149,0 - 159,0 7,0 mm RW

Checking values in brackets

B. Governor Settings

LS 2445 Z - AB 839 D (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	1180 1200 1240 1350	15,0-15,6 10,0-14,2 2,0-8,8 0	540	0	100 250 350 440	7,2-8,0 8,4-7,0 1,6-4,0 0	800 1000	15,6-16,0 15,0-15,4

Torque-control travel on flyweight assembly dimension a = $0,2$ mm Speed regulation At $1190 - 1205$ = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1150	109,5 - 111,5		800 500	112,0 - 115,0 max. 112,5	100	149,0 - 159,0
1150 60°	112,5 - 114,5		800 500	114,5 - 117,5 max. 115,5	250	7,0 mm RW

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 c

3. Edition

En

PES 6 A 95 D 410 LS 2420 Z, Y RQ 250/1150 AB839DL (1-3)
 LS 2420 RQ 250/1150 AB869DL (4)
 LS 2420 Z RQ 250/1050 AB894DL (5)

supersedes 8.77
 company: M A N
 engine: D 2556..
 MXUH/MXUM (1 - 232 PS)
 MUH/MUM (2 - 200 PS)
 MXUH/MXUN (3 - 210 PS)
 MXUM/MXUH (4 - 192 PS)
 MXUM/MXUH (5 - 175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ .. 839 DL (1)

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12				
600	15,7-16,3	600	16,0	1170	15,0-15,4	1200	10,0-14,4	1250	0 - 9	1320	540	0	150	6,6-8,1	250	4,5-6,7	350	1,5-4,0	440	0	880	15,8-16,0	1020	15,4-15,6	1100	15,3-15,4

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1190 - 1205 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ -1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ -1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		Control rod travel mm 8	
2420	+ 839 DL -20°					800	118,5 - 121,5	500	max. 121,5	100	11,9 - 12,9	(14±0,3 mm RW)			
1150	120,5 - 122,5	C, col. 6-7		800	116,0 - 119,0	500	max. 118,5								
40°															
1150	117,5 - 119,5														

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1170 1200 1250 1320	15,0-15,4 10,0-14,4 0 - 9	540	0	150 250 350 440	6,6-8,1 4,5-6,7 1,5-4,0 0	880 1020 1100	15,8-16,0 15,4-15,6 15,3-15,4

Torque-control travel on flyweight assembly dimension a = **0,2** mm Speed regulation At **1190 - 1205** = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
2420Z	+ 839 DL - 20°					
1150	106,0 - 108,0	*	800 500	108,0 - 111,0 max. 106,5	100	11,9 - 12,9 (14±0,3 mm RW)
40°					250	7 mm RW
1150	103,0 - 105,0		800 500	105,5 - 108,5 max. 103,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1170 1200 1250 1320	15,0-15,4 10,0-14,4 0 - 9	540	0	150 250 350 440	6,6-8,1 4,5-6,7 1,5-4,0 0	880 1020 1100	15,8-16,0 15,4-15,6 15,3-15,4

Torque-control travel on flyweight assembly dimension a = **0,2** mm Speed regulation At **1190 - 1205** = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
2420Y	+ 839 DL - 20°					
1150	109,5 - 111,5	* C, col. 6-7	800 500	109,0 - 112,0 max. 112,0	100	11,9 - 12,9 (14±0,3 mm RW)
40°					250	7 mm RW
1150	106,5 - 108,5		800 500	106,5 - 109,5 max. 109,0		

En Checking values in brackets

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1170 1200 1250 1320	15,6-16,0 11,0-15,0 0 - 9,6 0	550	0	150 120 350 450	6,5-8,1 4,7-6,9 1,7-4,2 0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation At 1190 - 1205 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
2420	+ 869 DL - 20 ⁰					
1150	124,5 - 126,5	*	500	max. 121,5	100	11,9 - 12,9 (14±0,3 mmRW)
40 ⁰					250	7 mm RW
1150	121,5 - 123,5		500	max. 118,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-18,3	600	16,0	1070 1100 1140 1200	14,8-15,2 8,4-13,5 0 - 8,8 0	540	0	100 250 350 440	7,1-8,1 4,7-6,9 1,6-3,9 0	750	15,8-16,0 1050 15,0-15,2

Torque-control travel on flyweight assembly dimension a = 0,3 mm Speed regulation At 1090 - 1105 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
2420Z	+ 894 DL-20 ⁰					
1050	91,5 - 93,5	* C, col. 6-7	800 500	93,0 - 96,0 max. 92,5	100	11,9 - 12,9
40 ⁰					250	7 mm RW
1050	88,5 - 90,5		800 500	90,5 - 93,5 max. 89,5		

C21 En Checking values in brackets

RQ.. 894DL

B. Governor Settings

②

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-18,3	600	16,0	1070 1100 1140 1200	14,8-15,2 8,4-13,5 0 - 8,8 0	540	0	100 250 350 440	7,1-8,1 4,7-6,9 1,6-3,9 0	750 1050	15,8-16,0 15,0-15,2

Torque-control travel on flyweight assembly dimension a = **0,3** mm Speed regulation At **1090 - 1105** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
2420	+ 894DL	*	700	100,0 - 103,0	100	11,9 - 12,9
1050	101,5 - 103,5		500	max. 103,5	250	7 mm RW

Checking values in brackets

RQ..894DL

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-18,3	600	16,0	1070 1100 1140 1200	14,8-15,2 8,4-13,5 0 - 8,8 0	540	0	100 250 350 440	7,1-8,1 4,7-6,9 1,6-3,9 0	750 1050	15,8-16,0 15,0-15,2

Torque-control travel on flyweight assembly dimension a = **0,3** mm Speed regulation At **1090 - 1105** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
2420Z	+ 894 DL-20°	*	800	93,0 - 96,0	100	11,9 - 12,9
1050	91,5 - 93,5	C, col.6-7	500	max. 92,5	250	7 mm RW
40°			800	90,5 - 93,5		
1050	88,5 - 90,5		500	max. 89,5		

En Checking values in brackets

C22

C22

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 12,8 c

1. Edition

En

PE 8 A 95 D 320 LS2421 RQ 250/1200 AB928DR (1)
RQ 250/1150 AB940DR (2)

supersedes

company: M A N

engine: D 2548 M/MF (1)
D 2538 MTF (2)

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1
0 -45 -90 -135-188-225-270-315⁰ ±0,50(0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,70-1,80}{(1,65-1,85)}$ mm (from BDC) Cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,6 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ..928DR (1)

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	15,6-16,4	600	16,0	1220	15,6-16,0	540	0	150	6,7-8,1	-	-												
				1260	9,5-14,0			250	4,8-6,9														
				1300	0 -9,5			350	1,6-4,0														
				1370	0 -1,5			440	0 - 1														

Torque-control travel on flyweight assembly dimension a = $\overset{0}{1245 - 1260}$ mm = 1 mm less control rod travel

Speed regulation: At

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		Control rod travel cm ³ /1000 strokes/mm 7	
1200	110,5 - 112,5									100	18,2-18,8		
										250	7,0		

Checking values in brackets

Testoil-ISO 4113

C23

C23

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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10.77

B Governor Settings

RQ..940DR (2)

②

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	19,2-20,8	600	20,0	1170	18,4-18,8	540	0	150	9,2-11,7	900	19,7-20,0				
1190	Breakaway	(Control lever ca. 49°)		1210	10,2-16,0			250	6,4-9,7						
				1250	0 - 10			350	2,2-5,8	1050	18,8-19,2				
				1320	0 - 1,5			440	0 - 1						

Torque-control travel on flyweight assembly dimension a **0,3** mm Speed regulation At **1195 - 1210** = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40 C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min	rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7
LDA 1150	0,5 bar 122,5 - 124,5		LDA 800	0,5 bar 126,5 - 130,5	100	18,2-18,8 *
			LDA 500	0 bar 84,5 - 86,5	250	7,0

* Briefly switch on starting solenoid 24 V !

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = **800** rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel diminution
	Gauge pressure = bar	Gauge pressure = bar	mm
2421 + 940DR	0,25	0,15	- 0,2 - 0,3 - 0,9 - 1,1

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps ② and Governors

PES 5 A 95 D 410 LS 2426 Z

RQ 250/1150 AB 839 DL

Komb.-Nr. 0 400 845 022 = MAN-Nr. 1-7528

supersedes 3.84
MAN
company: D 2555 M/MF
engine: 124 kW/2300 min⁻¹

1 - 3 - 5 - 4 - 2 je 72° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testo: ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,3 - 1,4}
(1,25-1,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of sloer PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
rev/min	Control rod travel mm	Setting point		Test specifications		Setting point		Test specifications		rev/min	Control rod travel mm		
		rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm					
1	2	3	4	5	6	7	8	9	10	11	12		
600	15,7-16,3	600	16,0	1170	15,0-15,4	540	0	150	6,6-8,1	880	15,8-16,0		
				1200	10,0-14,4			250	4,5-6,7			1020	14,4-15,6
				1250	0 - 9			350	1,5-4,0				
				1320	0			440	0			1000	15,3-15,4

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1190 - 1205 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1150	100,5 - 102,5 (98,5 - 104,5)	-	800	104,0 - 107,0 (102,0 - 109,0) max. 103,5 (max. 105,5)	100	146,5-156,5 =15,7- 16,3 mm RW

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1170	15,0-15,4	540	0	150	6,6-8,1	880	15,8-16,0
				1200	10,0-14,4			250	4,5-6,7	1020	15,4-15,6
				1250	0 - 9			350	1,5-4,0		
				1320	0			440	0	1100	15,3-15,4

Torque-control travel on flyweight assembly dimension a = **0,2** mm Speed regulation At **1190-1205** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
2426Z						
1150	100,5 - 102,5		800	104,0 - 107,0	100	11,9 - 12,9
					250	7 mm RW
						./.

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170	14,4-17,4				ca. 13	50	7,7-11,0	200	0,5-1,2
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4
	1350	0					350	0 - 3,4	1180	0
							410	0	1100	0
						(3a)			500	0,3-0,5

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	114,5-116,5	1190-1205 ⁺	800	115,0-118,0	100	119,0-129,0		
			500	max. 226,5	250	7 mm RW		
**					***	180-100 min ⁻¹		

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170	14,4-17,4				ca. 15	50	7,7-11,0	200	0,5-1,2
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4
	1350	0					350	0 - 3,4	1180	8,4
							410	0	1100	0
						(3a)			500	0,3-0,5

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	109,5-111,5	1190-1205 ⁺	800	112,0-115,0	100	119,0-129,0		
			500	max. 112,5	250	7 mm RW		
** (increase by ± 1,0 cm ³ !)					***	Change-over point		
						180-100 min ⁻¹		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 1052 DL

supersedes 10.79
company: MAN-SAVIEM
engine: D2566 MSH
(177,0kW-241PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) b
1100	12,0-12,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1 2		Full-load speed regulation Setting point Control rod travel rev/min 3 4				Idle speed regulation Setting point Control rod travel rev/min 7 8				Torque control Control rod travel rev/min 11 12	
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,0	1145-1160	250	6,0	100	min.7,5		
	Control lever ca. 46°			4,0	1190-1220			250	5,9-6,1		
				1300	0 - 1,0			500	max.1,0		
								335-375=2,0			

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	124,5 - 126,5 (122,5 - 128,5)		500	max. 113,5 (max. 115,5)	100	125,0 - 135,0 14,0-14,6 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 k

2. Edition

En

PES 6 A 95 D 410 LS2489 RQ 250/1050 AB894D
LS2489Z RQ 250/1050 AB894D ./.

supersedes 2.76
company: M A N
engine: D 2566 MUH
(192 PS)
D 2566 MUH/M
(175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,0 (+0,1)	10,3 - 10,4	0,3 (0,6)	9,5 (+0,1)	8,9 - 9,1	
250	6,0 (±0,1)	1,2 - 1,8	0,3 (0,5)	5,9 (±0,1)	0,9 - 1,3	
700/500 -	Sect. C	col. 4,5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12			
600	15,7-16,3	600	16,0	1070	14,8-15,2	1100	9,4-13,5	1140	0 - 8,8	1200	0	530	0	100	7,1-8,1	250	4,7-6,9	350	1,6-3,9	440	0	750	15,8-16,0	1050	15,0-15,2

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		Control rod travel mm 8	
1050	101,5 - 103,5 (99,5 - 105,5)					700	100,0 - 104,0 (98,0 - 106,0)			100	11,9 - 12,9				
						500	99,5 - 103,5 (97,5 - 105,5)			250	6,0 mm R!				

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

.894D + 2489Z

MAN 11,1 k
-2- (2)

Checking of slider PRG check (1)		Full load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1070	14,8-15,2	530	0	100	7,1-8,1	750	15,8-16,0
				1100	9,4-13,5			250	4,7-6,9	1050	15,0-15,2
				1140	0 - 8,8			350	1,6-3,9		
				1200	0			440	0		

Torque-control travel on flyweight assembly dimension a **0,3** mm Speed regulation At **1095-1110(1090-1115)** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery idle speed (6)	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1050	87,5 - 89,5 (85,5 - 91,5)		800	91,5 - 94,5 (89,5 - 96,5)	100	11,1 - 11,9
			500	84,5 - 88,5 (82,5 - 90,5)	250	6,0 mm RW
20° 1050	89,5 - 91,5		800	91,0 - 94,0		
			500	83,5 - 87,5		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check (1)		Full load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery idle speed (6)	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 g l

2. Edition

En

PES 6 A 95 D 410 LS2485Z RQ 250/1100 AB839DL (1)
 LS2485Y RQ 250/1100 AB839DL (2)
 LS2485Y RQ 250/1100 AB965DL (3)

supersedes 8.77
 company: MAN
 engine: D 2566 ..
 MSFV (1- 220 PS)
 MFO/MFOR (2- 220 PS)
 MFO/MFOR (3- 200 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery Z, Y + 839DL cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery Y + 965DL cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,2+0,1	11,2 - 11,4	0,3(0,6)	10,0 (+0,1)	10,1 - 10,3	
250	5,9-6,1	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Z + 839DL (1)

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3										
				4,0	1175-1205			250	5,9-6,1					340-400 = 2,0	800	11,5-11,6					
				1300	0 - 1,0			500	max. 1,0	500	11,5-11,7										

Torque-control travel on flyweight assembly dimension a = $\frac{0,2}{mm}$ Speed regulation: At $\frac{1145-1160 \text{ min}^{-1}}{1 \text{ mm less control rod travel}}$

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1100	112,0 - 114,0 (110,0 - 116,0)	-		800	114,5 - 117,5 (112,5 - 119,5)	100	114,0-120,0 (111,0-123,0)		
				500	111,0 - 114,0 (109,0 - 116,0)	250	6,0		

Checking values in brackets

4.85

B. Governor Settings

Y + 839DL (2)

②

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3
1100	**			4,0	1175-1205			250	5,9-6,1	800	11,5-11,6
1300	0 - 1							340-500	400 = 2,0 0 - 1		

Torque-control travel on flyweight assembly dimension a **0,2** mm Speed regulation At **1** mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm mm RW
1	2	3	4	5	6	7
1100	112,5 - 114,5 (110,5 - 116,5)		800	114,5 - 117,5 (112,5 - 119,5)	100	13,0-13,6
			500	110,5 - 113,5 (108,5 - 115,5)	250	6,0

Checking values in brackets

B. Governor Settings

Y + 965DL (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	9,0	1145-1160	250	6,0	100	min. 7,9	-	-
1100	** Breakaway			4,0	1180-1210			250	6,3-6,5		
1300	0 - 1							360-420	= 2,0 0 - 1		

Torque-control travel on flyweight assembly dimension a **0** mm Speed regulation At **1** mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm mm RW
1	2	3	4	5	6	7
1100	99,5 - 101,5 (97,5 - 103,5)		500	86,5 - 91,5 (84,5 - 93,5)	100	13,6-14,2
					250	6,0

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1 f

1. Edition

En

PES 6 A 95 D 410 LS2489Z RQ 250/1100 AB 839D

supersedes _
company: M A N
engine: D 2566 MXUM(220PS)
MXUH

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6 mm (from BDC) (1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 8,0	0,3 (0,6)			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1100	15,1-15,4	540	0	100	6,9-8,1	900	15,8-16,0
				1150	9,0-14,0			200	5,6-7,6	1030	15,3-15,5
				1200	0 - 7,2			300	3,3-5,5		
				1250	0			440	0		

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145 - 1160 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
	rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
20°	1100	114,5 - 116,5		700	110,5 - 113,5	100	111,0 - 119,0
				500	max. 116,0		
40°	1100	112,0 - 114,0		700	107,0 - 110,0	250	6,0 mm RW
				500	max. 113,0		

Checking values in brackets

2.76

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,2 m

1. Edition

En

PES 5 A 95 D 410 LS2543 RSV 250-1100 A1 B1124L

supersedes

company RVI-SAVIEM

engine MAN D2565MSFV

1 - 3 - 5 - 4 - 2
0 -72 -144-216-288° $\pm 0,50$ ($\pm 0,75$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,50-1,60$
($1,45-1,65$) mm (from BDC) Cyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0-12,1	11,7 - 11,9	0,3(0,6)			
250	7,4-7,6	0,9 - 1,5	0,3(0,5)			
750/500	- - -	C, 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca.21	250	7,0	1100	12,0-12,1
	X =	3,5					100	min. 19	930	12,3-12,5
							250	7,4-7,6	550	12,6-12,7
ca.57							455-515	2,0		
②a							575	0-1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	115,5 - 117,5 (113,5 - 119,5)	1140-1150*	750	110,5 - 113,5 (108,5 - 113,5)	100	149 - 159		
			500	max. 111,5 (113,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.79

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 g

1. Edition

En

PES 5 A 95 D 410 LS 2503 RQ 250/1050 AB 839 DL

supersedes

company: MAN

engine: D 2565 MUH

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,9 (+0,1)	11,3 - 11,5	0,3 (0,6)			
250	5,5-5,7	0,6 - 1,2	0,3 (0,5)			
800/500	Sect. C	col. 4,5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control Control rod travel ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,9	1095-1110	250	5,6	100	mind. 7,1	1050	10,9-11,0
1070	15,0-15,4			4,0	1130-1160			250	5,5 - 5,7	800	11,2-11,4
1250	0 - 1							330- 450	390=2,0 0 - 1	500	11,4-11,6

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1050	111,5 - 113,5 (109,5 - 115,5)		800	113,0 - 116,0 (111,0 - 118,0)	100	13,7 - 14,3
			500	111,5 - 114,5 (109,5 - 116,5)		
1050 (20°)	114,5 - 116,5		800	115,0 - 118,0	250	6,0
			500	114,5 - 117,5		

Checking values in brackets

12.76

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,7 m 1

2. Edition
En

PES 6 A 95 D 420 LS2328 RQ 200/1100 AB782DR

supersedes 3.76
company: MAN
engine: D 2356 HMYU*
(220 PS)*

* When performing repairs, all motors D 2356 HMXU must be changed to D 2356 HMYU in accordance with test specifications below!
Assy. No. 0 400 846 239

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1120	15,6-16,0	550	0	100	6,6-8,1	-	-
				1150	9,0-14,2			200	5,4-7,3		
				1180	0 - 16			300	3,3-5,3		
				1240	0			450	0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	125,5 - 127,5 (123,5-129,5)	500	800	125,0 - 128,0 (123,0-130,0)	100	14,0-14,4 mm
			500	max. 122,5 (max. 124,5)	200	6,5 mm

Checking values in brackets

3.85

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 7,2 i

1. Edition

En

PES 6 A 85 D 410 RS2139

EP/RSV 325-750 A7 B 536DL

supersedes -

company

M A N

engine

D 0836 HM

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	0,6 - 1,4				
200	9	1,4 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 44	750	16,0	without auxiliary spring			ca. 19	325	6,0	750	0
	770	11,8					100	19 - 21		
790	7,2	with auxiliary spring				325	5,7-6,3	400	0,4-0,6	
⑤	780					7,2-10,2	400			3,3-4,6
	850	1,6-3,4					550	0 - 1		
	920	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	750	52,5 - 54,5	780-790 *			100	mind. 20 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.76

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 5,9 g

1. Edition

En

PE 6 A 65 D 410 RS 1059 EP/RSV 325-750 A1 B537DL

supersedes

company M A N

engine: D 0026 M - TME

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 mm (from BDC) max. RW

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,2	0,3			
	6 12	1,1 - 1,8 5,8 - 6,5				
200	6	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 44	750	16,0	without auxiliary spring			ca. 19	325	6,0	.730	0
	770	11,8					100	19,0-21,0		
790	7,2	with auxiliary spring				325			5,7- 6,3	400
⑤ 780	8,2-10,2						550	0 - 1,0		
850	1,6- 3,4									
920	0,3- 1,0									

Testoil-ISO 4113

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	750	56,0 - 58,0	760-770			100	min. 20mm RW		
	- Re-check on engine! !								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 3,9 b

1. Edition

En

PE 4 A 65 D 410 RS 1072 EP/RSV 325-750 A1 B537DL

supersedes -

company: MAN

engine: D 0024 M ..

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,4 - 2,1	0,4			
	12	5,7 - 6,2				
	18	9,7 - 10,6				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 41	750 800 830	16,0 10,1 5,0	without auxiliary spring			ca. 24	325	6,0	730	0
⑤	820 900 1010	3,3-8,8 0,8-3,2 0,3-1,0				with auxiliary spring				150 325 400 580

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9
750	39,5 - 41,5	765-775 *						

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.77

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 1

1. Edition

En

PES 5 A 95 D 410 LS 2544 RQ 250/1100 AB1039DL (1)
LS 2544 250/1050 AB1042DL (2)

supersedes
company: M A N
engine: D 2565 MUH

1 - 3 - 5 - 4 - 2 $\pm 0,50$
0 - 72-144-216-288⁰ ($\pm 0,75$)

(1 - 141 kW - 192 PS)
(2 - 129 kW - 175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,50-1,60}{(1,45-1,65)}$ mm (from BDC) Cyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0	11,8 - 12,0	0,3(0,6)	10,5	10,9 - 11,1	- 1050/min
250	+0,1 5,9-6,1	0,9 - 1,5	0,3(0,5)	+0,1 5,9-6,1	0,8 - 1,4	
750/500	- - -	C, 4-5	0,4(0,7)	- - -		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,0	1145-1160	250	6,0	100	min.7,5		$\pm 0,1$
1100	10,8-11,2			4,0	1180-1210			250	5,9-6,1	1100	11,0
1300	0 - 1							355-395 = 2,0		790	11,6
								500	0 - 1	550	11,9

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation. At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1100	116,5 - 118,5 (114,5 - 120,5)		750	111,5 - 114,5 (109,5 - 116,5)	100	149,0 - 159,0
			500	max. 111,5 (113,5)	250	6,0 mm RW
						./.

Checking values in brackets

7.78

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	9,5	1095-1110	250	6,0	100	min. 7,5		± 0,1
				4,0	1170-1200			250	5,9-6,1	1050	10,5
1050	10,4-10,6							360-450	400 = 2,0 0 - 1	815	11,1
1250	0 - 1									600	11,4

Torque-control travel on flyweight assembly dimension a : 0,3 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(2) 1050	107,5 - 109,5 (105,5 - 111,5)		700	101,5 - 104,5 (99,5 - 106,5)	100	149,0 - 159,0
			500	max. 102,5 (104,5)	250	6,0 mm RW

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a - mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,3 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 3	Control rod travel mm 3	Control rod travel mm 3	Control rod travel mm 3	
600	15,7-16,3	600	16,0	1100	15,1-15,4	540	0	100	6,9-8,1	900	15,8-16,0
				1150	9,0-14,0			200	5,6-7,6	1030	15,3-15,5
				1200	0 - 7,2			300	3,3-5,5		
				1250	0			440	0		

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145 - 1160 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ -1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3a	Control rod travel mm 3a	cm ³ -1000 strokes 5	Control rod travel mm 3a	Control rod travel mm 3a	Control rod travel mm 3a
20° 1100	119,5 - 121,5			800 500	117,5 - 120,5 max. 120,5	100 250	11,9 - 12,9 7 mm RW
40° 1100	116,5 - 118,5			800 500	115,0 - 118,0 max. 117,5		

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c 1

1. Edition

En

PE 10 A 95 D 520/5 LS2501

RQ 750 AB1015R

supersedes

company MAN

engine: D 2530 MTE

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
0 -45 -72 -117-144-189-216-261-288-333⁰ ± 0,5 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,70-1,80}{(1,65-1,35)}$ mm (from BDC) Cyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
730	12,7	13,1 - 13,3	0,3(0,6)			
	+0,1					
200	6,4-6,6	1,5 - 2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 30	11,7	747-753	--	-	-	-	-	-	750	5,7
	3,8	770-780								
	810	0 - 1								

Torque control travel a = - mm

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
730	129,5-131,5 (127,5-133,5)	745-755	778	16,5 - 21,5 dispersion .4 (6)				
Set damping stop from 4.5 to 4.6 mm CRT!								

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.78

E7

E7

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c

3. Edition

En

PE 10 A 95 D 520/5 LS2501 RQV 250-1250 AB967R (1)
RQV 250-1150 AB967R (2)
RQV 750 AB966R (3)

supersedes 11.76
company: MAN
engine: D 2530 MTE

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
0 - 45 - 72 - 117 - 144 - 189 - 216 - 261 - 288 - 333⁰

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Cyl. 10

Port closing at prestroke $\begin{matrix} 1,70-1,80 \\ (1,65-1,85) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2 (+0,1)	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
(1) 1250	10,5	10,1 - 10,3	0,3(0,6)	725/12,6	- 12,6 - 12,9	(3)
(2) 1150	12,0	13,0 - 13,2	0,3(0,6)			
(1-2)250	5,9-6,1	1,5 - 2,1	0,3(0,5)	200/6,5	- 1,5 - 2,1	(3)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1250 (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 50	1275 1500	14,4-17,4 0 - 1	-	-	-	ca. 13	100 250 310-370 = 2,0	min. 7,5 5,9-6,1	200 500 1000 1275	0,5-1,2 3,7-4,1 5,9-6,3 8,4
ca. 43	1295 1355	ca. 9,5 ca. 4,0								
						3a			-	-

Torque control travel a = mm

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) rev/min 1		Rotational-speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel Control rod travel rev/min 8	
cm ³ /1000 strokes 2	cm ³ /1000 strokes 3	cm ³ /1000 strokes 4a	cm ³ /1000 strokes 5	cm ³ /1000 strokes 6	cm ³ /1000 strokes 7	mm RW/ 9	mm 10	mm 11	
1250	99,5-101,5 (98,5-102,5)	1290-1300*				100 250	15,7-16,3 15,0-21,0		
						Change-over point 100 - 170 min ⁻¹		./.	

Checking values in brackets

* 1 mm less control rod travel than col. 2
5.78

E8

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E8

B. Governor Settings

250-1150 (2)

MAN 16,0 c

- 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1180 1360	14,4-18,0 0 - 1	-	-	-	ca. 13	100 250 310-370= 2,0	mind. 7,5 5,9-6,1	200 480 800 1180	0,5-1,2 3,2-4,0 5,0-5,4 8,4
ca. 44	1195 1255	ca. 11,0 ca. 4,0							-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	128,5-130,5 (126,5-132,5)	1190-1200 *	500	124,0-127,0 (122,0-129,0)	100	15,7-16,3		
					250	15,0-21,0		

- Change-over point
100-170 (80-190)

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

750 (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 29	725 800	16,0-22,0 0							750	4,6
	750 775	ca. 11,6 ca. 4,0							-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
725	125,0-127,0 (126,0-129,0)	745-755 *			-	- - -		
					200	15,0-21,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 b

2. Edition

En

PES 5 A 95 D 410 LS 2381

RQ 250/1150 AB 839 D

supersedes 11.74

PES 5 A 95 D 410 LS 2396

RQV 250-1150 AB 847 D, 850D

company: MAN

RQ 250/1150 AB 839 D

engine D 2555 M/MH
(168 PS)

1 - 3 - 5 - 4 - 2 je 72°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke 1,6 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ .. 839 D

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Test specifications Control rod travel mm 4		rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		rev/min 9		Control rod travel mm 10		rev/min 11		Control rod travel mm 12					
600	15,7-16,3	600	16,0	1170	15,0-15,4	1200	10,0-14,4	1250	0 - 9	1320	0	540	0	150	6,6-8,1	250	4,5-6,7	350	1,5-4,0	440	0	880	15,8-16,0	1020	15,4-15,6	1100	15,3-15,4

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation. At 1190 - 1205 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm Control rod travel 7	
20°	2381 und 2396	1150	112,5 - 114,5			800	114,5 - 117,5	500	max. 115,5	100	119 - 129		
40°	109,5 - 111,5 (increase by ± 1,0 cm ³ !)					800	112,0 - 115,0	500	max. 112,5	250	7 mm RW		
													./.

Checking values in brackets

B. Governor Settings

RQV .. 847 D, .. 850 D MAN 9,2 b - 2 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1170	14,4-17,4				ca. 13	50	7,7-11,0	200	0,5-1,3
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4
	1350	0					350	0 - 3,4	1180	8,4
							410	0		1100
									500	0,3-0,5

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
20°	2381 und 2396	1190-1205 *	800	114,5-117,5	100	119 - 129		
1150	112,5-114,5		500	max. 115,5	250	7 mm RW		
40°	109,5-111,5		800	112,0-115,0	Change-over point			
(increase by ± 1,0 cm ³ !)			500	max. 112,5	180-200 min ⁻¹			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 8,3 t

1. Edition

En

PE 6 A 70 C 412 RS 1058 EP/RSV 325-750 A7 B537DL

 supersedes -
 company: MAN
 engine: D 1246 M

Note: Perform basic adjustment before setting start of delivery.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 mm (from BDC) RW 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 4,8	0,3			
	6	2,0 - 2,6				
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 44	750	16,0	without auxiliary spring			ca. 19	325	6,0	730	0
	770	11,8					400	0,4-0,6		
	790	7,2	with auxiliary spring			3a	100	19,0-21,0		
	780	8,2-10,2					325	5,7- 6,3		
	850	1,6- 3,4					400	3,3- 4,6		
	920	0,3- 1,0					550	0 - 1,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idc speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	67,0 - 69,0	760			100	min.20mm RW	325	6,0
- Re-check on engine! -								

Checking values in brackets

* 1 mm less control rod travel than col. 2
1,79

E14

E14

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 5,1 e

1. Edition

En

PES 5 A 80 D 410 RS 2526 RS 325/1400 A0B 2212 L

supersedes
company Deutz Argentinien
engine F 5 L 913

Komb.-Nr. 9 400 085 255

1-3-5-4-2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,9-2,0 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,5+0,1	6,6-6,7	0,25 (0,4)			
325	8,4-8,6	1,0-1,3	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	-	FH ca. 28	325	8,5	1400	11,5-11,6
VHca. 55 FH max.	X = 2,0						280	8,8-9,6	500	12,2-12,3
	10,5	1440-1450					420	5,6-6,4	1100	11,8-12,1
	4,0	1500-1530					550	max. 4,4		
2a	1600	0,3-1,7					1300	max. 3,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	65,0-66,5 (64,0-68,0)	1440-1450*	500	55,5-57,5 (53,5-59,5)	100	19,0-21,0 mm RW	-	-
			1100	62,0-64,0 (60,0-66,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.85

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E17

E17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HAN 10,8 g

1. Edition

En

PE 6 A 95 D 320 RS2557 Z EP/RSV 350-1100 A8 B1117DR (1) supersedes -
RS2557 A8 B1118DR (2) company MF-Hanomag
engine D 963 TC (1)
D 962 (2)

Test cold-start device according to VDT-I-DAF 004

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 - 2,25 mm (from BDC)
(2,10 - 2,30)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,3-11,4	10,6-10,9	0,3(0,6)	10,0-10,1	9,0 - 9,3	
350	6,4- 6,5	0,9- 1,5	0,3(0,5)	6,4- 6,5	0,9 - 1,5	
700/500	- - -	C, 4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1117 DR (1)

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0				ca. 25	350	5,5	1100	11,3-11,4
	x	= 5,50					100	min. 19	960	11,4-11,6
ca. 56	1140-1150 =	10,3					350	5,9-6,1	..	
2a	1175-1205 =	4,0					490-550	= 2,0	500	11,6-11,7
	1370	0,3- 1,7					650	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min	cm ³ /1000 strokes	3	4	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2				6	7	8	9	
1100	105,0-107,0 (103,0-109,0)	1140-1150*	700	108,0-111,0 (106,0-113,0)	100	**19 - 21			
			500	100,0-102,0 (98,0-104,0)				./.	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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6.79

F10

F10

118DR (2)

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca.25	350	5,5	1100	10,1-10,2
	x = 5,50						100	min.19		975
ca.56	1140-1150 = 9,0						350	5,9-6,1	500	10,6-10,7
	1170-1200 = 4,0					490-550	= 2,0			
2a	1300	0,3- 1,7					650	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1100	89,0-91,0 (87,0-93,0)	1140-1150*	700	93,0-96,0 (91,0-98,0)	100	19 - 21			
			500	83,5-86,5 (81,5-88,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications Fuel Injection Pumps and Governors 1A

40

WPP 001/4 HAN 10,8 a

3. Edition

En

PE 6 A 95 D 320 RS2364	EP/RSV 350-1100 A4 B1041DR (1)
RS2364	350-1100 A4 B1069DR (2)
RS2364	350-1100 A4 B1070 R (3)
RS2364	350-1100 A4BV12413 (4)
PE 4 A 95 D 420 RS2365,Z,Y	350-1100 A4 B1041DR (5)
RS2365	350-1100 A4 B1041DR (6)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes	12.74
company	MF-Hanomag
engine	D962 (1)
	D963 (2)
	D963A1 (3)
	DU963A1 (4)
	D 943 (5)
	DU943 (6)

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1041DR (1)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1100 1140 1180	16,0 11,8 6,2	without auxiliary spring			ca. 30	350	7,0	1100	0
ca. 68	1125 1200 1250	ca. 9,6 ca. 3,3 0,3-1,5				with auxiliary spring				100 350 450 630

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9	8	9
(1) 1100	1110-1125	700	89,0-91,0	92,5-96,5 91,5-97,5 83,5-86,5 82,5-87,5					./.

Checking values in brackets

* 1 mm less control rod travel than col 2

3.78

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B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1100	16,0	*			ca. 29	350	7,9	1100	0
	1140	12,2					100	19 - 21		
	1170	8,2								
	1150	9,3-11,8	**				350	7,6-8,2		
	1230	2,3- 5,0					500	2,4-5,2		
1320	0,3-1	600				0 - 1	500	0,6-0,8		

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)			Idle		Control rod travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
(2)	103,5-105,5	1110-1125	700	109,5-112,5				
			500	103,0-106,0				
DU963	86,0- 88,0	1130-1140*	700	94,5- 97,5				
1100			500	84,0- 87,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1070 R (3)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1110	16,0	*			ca. 30	350	7,9	1100	0
	1140	12,2					100	19 - 21		
	1170	7,4								
	1140	10,5-13,0	**				350	7,6-8,2		
	1200	4,5- 6,7					500	2,5-5,0		
1320	0,3- 1,0	650				0 - 1	350	0,2-0,8		

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)			Idle		Control rod travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
(3)								
1100	118,5-120,5	1110-1125	750	116,5-120,5				
			500	114,5-118,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed		③ Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1100 1140 1170	16,0 12,2 7,4	without auxiliary spring			ca. 30	350	7,9	1100	0
②a	1140 1200 1320	10,5-13,0 4,5- 6,7 0,3- 1,0	with auxiliary spring				100 350 500 650	19 - 21 7,6-8,2 2,5-5,0 0 - 1	350	0,2-0,8

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	8	9
1	2	3	4	5	6	7	8	9	
(4) 1100	LDA 0,6 bar 109,5-111,5 108,5-112,5	1130-1140*	LDA 700	0,6 bar 117,5-121,5 116,5-122,5					

Testoil-ISO 4113

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure / increasing pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2364 + V12413	0,40	0,20	0,2 - 0,3 1,1 - 1,3

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

/.

En

The numbers denote the sequence of the tests

1041DR (5)

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3						8	9	10	11
ca. 70	1100	16,0	*			ca. 30	350	7,0	1100	0
	1140	11,8					100	19 - 21		
	1180	6,2					350	6,7-7,3		
2a	1125	ca. 9,6	**			ca. 30	450	3,8-5,3	600	0,5-0,7
	1200	ca. 3,3					630	0 -1,5		
	1250	0,3-1,5								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1100	93,0 - 95,0	1140-1155*	700	99,5-103,5							
"Z"			500	91,5- 94,5							
1100	87,5 - 89,5	1140-1155*	700	91,5- 94,5							
"Y"											
1100	84,0 - 86,0	1140-1155*	500	82,5- 85,5							
			700	88,5- 91,5							
			500	78,0- 81,0							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1041DR (6) DU 943

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3						8	9	10	11
ca. 70	1100	16,0	*			ca. 30	350	7,0	1100	0
	1140	11,8					100	19 - 21		
	1180	6,2					350	6,7-7,3		
2a	1125	ca. 9,6	**			ca. 30	450	3,8-5,3	600	0,5-0,7
	1200	ca. 3,3					630	0 -1,5		
	1250	0,3-1,5								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
(6) 1100	76,0 - 78,0	1130-1140*	700	76,5-79,5							
			500	75,5-80,5							
				67,0-70,0							
				66,0-71,0							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 HAN 10,8 b

3. Edition

En

PE 6 A 95 D 320 RS 2364	EP(RSV 350-1100 A4 B1104DR (1)	supersedes	4.78
	RS 2364 EP/RSV 350-1100 A4 B1103DR (2)	company	MF-Hanomag
PE 4 A 95 D 420 RS 2365	EP/RSV 350-1100 A4 B1104DR (3)	engine	44C-55C-600 (1) 66C-700C (2) 44C (3)

Test cold-start device according to VDT-I-420/114
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

2364 + 1104D (1)

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.70	1100	16,0	without auxiliary spring			ca.30	350	7,0	1100	0
	1140	11,8					100	19 - 21		
	1180	6,2	with auxiliary spring			ca.30	350	6,9-7,1	600	0,5-0,7
ca.69	1155	ca.9,0					610	570=2,0		
	1180	ca.4,0						0 -1,5		
2a	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1100	89,0-91,0 (87,0-93,0)	1140-1150*	700	93,0 - 96,0 (91,0 - 98,0)				
			500	83,5 - 86,5 (81,5 - 88,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.78

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1100	16,0	*			ca. 29	350	6,0	1100	0
	1140	12,2					100	19 - 21		
	1170	8,2					350	6,4-6,6		
	1145	ca. 12,0	**	505-	565=2,0		500	0,4-0,6		
	1185	ca. 4,0	650	0 - 1,5						
1350	0,3- 1,7									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9		
(2) 1100	103,5-105,5 (101,5-107,5)	1140-1150*	700	99,5-103,5 (97,5-105,5)		**				
			500	103,5-105,5 (101,5-107,5)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1100	16,0	*	without auxiliary spring		ca. 30	350	7,0	1100	0
	1140	11,8					100	19 - 21		
	1180	6,2					350	6,9-7,1		
ca. 69	1145	ca. 9,0	**	with auxiliary spring			510-	570=2,0	600	0,5-0,7
	1180	ca. 4,0	650				0 - 1,5			
	1350	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9		
(3) 1100	93,0-95,0 (91,0-97,0)	1140-1150*	700	100,0-103,0 (98,0-105,0)		**				
			500	92,0- 94,0 (90,0- 96,0)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOB 6,0 d

2. Edition

En

PES 6 A 90 D 320 RS 2480
PES 6 A 90 D 320 RS 2481

RQV 250-1150 AB 594 R (1)
RQV 250-1150 AB 594 R (2)

supersedes 12.75
company: Volvo-BM
engine D 60 A (1)
TD 60 A (2)

Testing with "B" Leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC) **

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			2,5 + 0,1** (max. 2,2-2,9)
	6	1,6 - 2,6				
200	9	3,5 - 4,5				

** Port closing difference between control-rod travel 9 mm and 21 = 5,5-6,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11	
ca. 68	1150 1200 1250 1330 1440	15,0-18,0 11,3-15,2 7,2-12,2 0 - 7,2 0	-	-	-	ca. 14	200 300 400 500 650 800	6,6-8,0 4,0-6,3 2,9-3,8 2,3-3,6 1,0-2,2 0			

③a

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 800	51,0 - 53,0	1190-1200*				100 235 1250	min. 18mmRW 9,25-11,25) dispersion max. 2,0 11,25-16,25 dispersion max. 3,0	**	./.

Checking values in brackets

* 1 mm less control rod travel than col. 2
9.76
Testoil-ISO 4113
BOSCH

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B. Governor Settings

RQV..594 R (2)

VOB 6,0 d

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca .68	1150 1200 1250 1330 1440	15,0-18,0 11,3-15,2 7,2-12,2 0 - 7,2 0	-	-	-	ca .14	200 300 400 500 650 800	6,6-8,0 4,0-6,3 2,9-3,8 2,3-3,6 1,0-2,2 0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 900	70,0-72,0	1190-1200*			100 235	129,25-149,25 9,25-11,25		**
					dispersion max.2,0 1250 19,25-24,25 dispersion max.3,0			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 f
2. Edition

En

PE 6 A 85 D 320 RS 2466 RQ 250/1200 AB 662 R (1)
250/1300 (2)
Testing with "B" leads

supersedes 6.75
company: D A F
engine: DD 575 (1)
DF 615 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

**

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,2 - 4,5	0,4			
	6	1,3 - 2,0				
200	12	7,4 - 8,2				
	9	2,4 - 3,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250/1200 (1)

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,7-20,3	650	20,0	1200	19,6-20,0	470	0	100	9,0-11,7	-	-
1200	Breakaway	(Control lever ca. 49°)		1250	15,0-18,8			200	6,1- 9,2		
				1300	9,5-15,2			300	1,2- 4,7		
				1380	0 - 9			370	0		
				1480	0 - 1						

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1000	48,5 - 50,5					
** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.						./.

Checking values in brackets

8.76

B. Governor Settings

250/1300 (2)

DAF 6,2 f -2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	19,7-20,3	550	20,0	1300	19,6-20,0	480	0	100	9,6-11,5		
1300	Breakaway	(Control lever ca.49°)		1350	13,6-18,2			200	7,2-10,1		
				1400	6,6-14,0			300	2,5-5,7		
				1440	0 -10,2			380	0		
				1540	0 - 1						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1345-1360 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm ³ W
1	2	3	4	5	6	7
1000	54,5 - 55,5					

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm ³ W
1	2	3	4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 90 C 412 RS 2250
..D..

RQ 250/1400 AB 672 D
RQV250-1400 AB 739 D
RQV250- 825/1400 AB 827 D
EP/RSV 250-1100 A 7 B 560
RQV 250-1400 AB 891 D

supersedes 11.75
company: Steyr
engine: WD 614.01
(180 PS)

*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 5,1	0,4			
	6 12	1,5 - 2,3 8,5 - 9,5				
200	9	2,3 - 3,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

RQ .. AB 672 DL (1)

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
550	15,7-16,3	550	16,0	1400	14,2-14,6	530	0	100	7,8-8,1	1000	15,8-15,9			200	6,2-8,1	1350	14,6-14,8				
				1440	5,0-12,5			300	3,3-5,7					430	0						
				1470	0 - 8,5																
				1530	0																

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 3a	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1400	75,5-77,5			900	80,0 - 83,0	100	ca. 15 mm RW
1400	81,0-83,0		500	600	74,5 - 77,5		
1400	75,5-77,5 +						

* Test with "B-lines" and overflow valve "with" - pay attention to with running-in cap!

Checking values in brackets

4.79

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1400 1460 1540 1650	13,0-15,6 7,8-12,2 0 - 7,2 0	Pay attention to special setting and 3 washers beneath idle spring!			ca.10	250 350 500 700 880	7,2-8,0 3,3-5,7 2,6-4,0 1,0-2,2 0	1400 350	8,5 1,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	77,5 - 79,5	1420	1200	73,0 - 76,0	100	15,6-16,2		
			900	79,5 - 82,5				
			500	73,0 - 76,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

RQV 250-825/1400 AB 827D (3)

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1400 1460 1540 1660	14,0-17,0 9,0-13,5 1,5- 8,4 0	ca.47	700 900 1000 1380	11,8-13,8 2,8- 4,8 0,6- 1,0 0	ca.10	100 250 500 620	6,5-8,0 3,4-5,7 1,0-2,0 0	250 400 900 1000 1400 1560	1,0-2,2 2,4-2,9 6,6-7,1 7,4-7,6 8,3 1660Ende

Torque control travel a = 1,0 mm 800 0
500 = 0,9-1,1

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	77,5 - 79,5	1425	1200	73,0-76,0	100	15,6-16,2		
			800	79,5-82,5				
			500	73,0-76,0				
					Change-over point 200-130 U/min			

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 73	1100	16,0	without auxiliary spring			ca. 25	250	6,0	1080	0		
	1130	11,2					100	19 - 21				
	1160	4,5									250	5,7-6,3
	1140	7,5-10,5										
	1180	2,0- 3,6					440	0 - 1			300	1,2-1,8
1260	0 - 1	with auxiliary spring										

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
ca. 10 mm RW - Carry out adjustment on engine								

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV ..891 D (5)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1400	15,0-18,0	-	-	-	ca. 13	100	8,7-11,0	1400	8,2
	1500	8,3-13,3					200	6,6- 9,6		
	1600	1,0- 8,0					300	2,8- 5,8		
	1730	0					480	0		
									1400	0
									600	0,6-0,8

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	79,5 - 81,5	1440-1455*	900	80,0-83,0	100	114,9-124,9		
			500	73,0-76,0				
						Change-over point 200-130 U/min		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 b 1
3. Edition

En

PE 6 A 95 D 410 RS 2388 (1) RQ 225/1200 AB 766L
EP/RSV 250-1200 A5 B 584 DL
.. RS2388Z (2)
Testing with "B" leads

supersedes 8.76
company: DAF
engine: DU 825 (1)
DHB825 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,0-2,1 (RW 9) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,4 - 7,8	0,4			
	9	3,1 - 3,8				
200	9	1,2 - 2,0				

** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ .. AB 766

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		④		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		⑤		Test specifications Control rod travel mm 9		rev/min 10		Torque control rev/min 11		Control rod travel mm 12		③	
650	1200	19,7-20,3	Breakaway	650	20,0	1200	1250	1280	1310	1390	19,7-20,0	12,0-17,5	6,5-14,0	0 - 10,5	0	590	0	100	250	350	490	9,8-11,7	7,3- 9,9	4,2- 7,0	0	-	-	-	-		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1245-1260 = 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7		⑥		Control rod travel	
	(1)	LDA	1000	0,5 bar	99,0-101,0			LDA	600	0 bar	77,0-80,0	100	min. 20 mm RW									
(2)		1000	0,7 bar	90,5-92,5			600	77,0-80,0			225	ca. 9 mm RW										
			(increase by ± 1,0 cm ³ !)																			./.

Checking values in brackets

4.77

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV .. 584 DL

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1200	16,0	without auxiliary spring			ca. 22	250	6,0	500	0,1-0,3
	1260	11,7					150	19 - 21		
	1330	5,6					250	5,7-6,3		
	1280	8,7-10,8					350	2,1-3,8		
	1350	2,3- 5,5					470	0 - 1		
2a	1450	0,3- 1,0	with auxiliary spring					300	0,8-1,0	

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	Control rod travel	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(1) LDA 1000	0,5 bar 99,0-101,0	1240-1250*		LDA 600	0 bar 77,0-80,0	100	min. 20		
(2) 1000	0,7 bar 90,5- 92,5			600	77,0-80,0	250	ca. 6		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-diminution
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2388 + 766 L 2388Z + 766 L)	0,25	0,14	0,1 - 0,2 0,8 - 0,9
2388 + 584 DL 2388Z + 584 DL)	0,25	0,14	0,1 - 0,2 0,8 - 0,9

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 A 90 D 410 RS2387

RQ 225/1200 AB748L

supersedes 6.76
company: van Doorne
engine: DH 825

EP/RSV 250-1200 A5 B612DL ./.

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,3 + 0,1 (RW9)

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,8 - 6,3	0,4			
	6 12	2,5 - 3,4 10,0 - 11,1				
200	9	3,2 - 4,4				

Part closing difference between control-rod travel 9 mm and 21 = 4,5-5,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in

RQ ... 748L

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
650 1200	19,7-20,3 Breakaway	650 (Control lever ca. 49°)	20,0 1200 1280 1380 1480	19,6-20,0 11,8-16,8 0 - 9 0 - 1	600 0	150 250 400 500	9,0-11,7 7,1-10,0 1,8- 5,2 0	-	-	-	

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1245-1260

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 7
1000	69,5 - 71,5					

Checking values in brackets

8.76

B. Governor Settings

EP/RSV .. 612 DL

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1200	16,0	without auxiliary spring			ca. 22	250	6,0	600	0
	1260	11,7					150	19 - 21		
2a	1330	5,6	with auxiliary spring				250	5,7-6,3	300	0,8-1,0
	1280	8,7-10,8					350	2,1-3,8		
	1350	2,3- 5,5					470	0 - 1		
1450	0,3- 1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...)	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	69,5 - 71,5	1240-1250*							

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...)	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
1. Edition

En

PES 4 A 85 D 210 RS2576 EP/RSV 300-1150 A2B2069R

supersedes -
company D. Brown
engine 45500

1 - 2 - 4 - 3 ± 0,50
0 -90 -180-270° (± 0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,70-2,80) mm (from BDC)
(2,65-2,85)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	9,8-9,9	6,0-6,2	0,3(0,45)			
300	6,9-7,1	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 20	300	6,5	800	9,8-9,9
		x = 4,0					100	min. 19	500	9,8-9,9
ca. 46		1190-1200 = 8,8					300	6,9-7,1	350	11,1-11,7
2a		1225-1255 = 4,0					390-450 = 2,0			
		1400 = 0,3-1,7					500	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
800	61,0 - 62,0 (59,0 - 64,0)	1190-1200*			100	114,5-124,5		

Checking values in brackets

* 1 mm less control rod travel than col 2

5.79

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G14

614

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 6 A 95 D 410 RS 2536 RSV 400-1100 A 2 B 2018 DL

supersedes

company

John Deere

engine

6455 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,85-1,95}{(1,8- 2,0)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,0-10,2	9,7-9,9	0,3(0,5)			
400	6,0- 6,1	1,2-1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,7				ca. 21	400	5,5	1100	0
	x = 3,4						100	19 - 21	1000	0,1
ca. 43	1150	9,2					400	5,9-6,0	800	0,6
②a	1200	5,1					480-540	= 2,0	650	0,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,50 bar 95,5-105,5 (94,5- 98,5)	1145-1155* (1140-1170)	LDA 650	0,50 bar 105,0-108,0 (104,0-109,0)	100 400	164-184 12 -16		
			LDA 550	0 bar 73,5- 79,5 (71,5- 81,5)	1200	19-29		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.79

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G15

615

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
2536 + 2018 DL	0,13 - 0,16	0,41 - 0,48	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
2. Edition

En

PES 4 A 75 D 410 RS 2553

EP/RSV 250-1200 A1 B1114DL

supersedes
company
engine

7.78
Steyr
WD 408.43

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,55) mm (from BDC)
Port closing at prestroke (2,40-2,60)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,3	5,6 - 5,7	0,2(0,35)			
250	+ 0,1 5,9-6,1	0,9 - 1,5	0,2(0,3)			
1000/500	- - -	C, 4 - 5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0				ca. 21	250	5,5	1200	+ 0,1
ca. 61	x = 4,0						100	min. 19	1100	10,3
	1240-1250 = 9,3						250	5,9-6,1		10,6
2a	1255-1285 = 4,0						410-470 = 2,0		500	10,8
	1400 0,3-1,7						600	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	56,0-57,0 (54,5-58,5)	1240-1250*	1000	55,0-57,0 (53,5-58,5)	100	94,5-104,5		
			500	48,5-50,5 (47,0-52,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.79

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ② and Governors

PE 6 A 90 D 320 RS2384 RQ 250/1200 AB653R
EP/RSV 250-1200 A5 B523R ./.

supersedes 8.76
company: D A F
engine: DT 615

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,2+0,1 (RW 9) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	2,9 - 3,9				

** Port closing difference between control rod travel 9 mm and 21 = 2,5-3,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ .. 653R

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12				
650	19,7-20,3	650	20,0	1200	10,6-20,0	610	0	150	9,0-11,7	-	-				
1250	Breakaway	(Control lever ca.49°)		1250	15,0-18,8			250	7,1-10,0						
				1300	9,5-15,2			350	4,0- 7,2						
				1380	0 - 9,0			450	0 - 3						
				1480	0 - 1			510	0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA	0,5 bar		LDA	0 bar		
1000	70,0-72,0		600	50,0-52,0		
	69,0-73,0			49,0-53,0		

Checking values in brackets

4.77

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV ... 523R

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1200 1280 1330	16,0 10,2 5,8	without auxiliary spring with auxiliary spring			ca. 22	250 150 250 350 450	6,0 19 - 21 5,7-6,3 1,6-3,7 0 - 1	500 250	0 0,3-0,5
2a	1260 1350 1460	10,6-11,6 2,7- 5,8 0,3- 1								

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1000	0,5 bar 70,0-72,0	1240-1250	LDA 600	0 bar 50,0-52,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 700 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-diminution difference mm (1)
2384 + 653R + 523R)	0,28	0,19	0,1 - 0,2 0,8 - 0,9

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6A 85D 320 RS 2385 RQ 250/1200 AB 662 R (1)
250/1300 (2)

supersedes 6.76
company: van Doorne
engine: DD 575 (1)

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,0 - 1,8				
200	9	2,1 - 2,9				

** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Adjust the fuel delivery from each outlet according to the values in

250/1200 (1)

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		① Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		④ Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤ Torque control rev/min 11		Control rod travel mm 12		③			
650	1200	19,7-20,3	Breakaway	650	20,0	20,0	(Control lever ca.49°)	1200	19,6-20,0	1250	15,0-18,8	1300	9,5-15,2	1380	0 - 9	1480	0 - 1	470	0	100	9,0-11,7	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		② Control rod stop rev/min 3		③a Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		③b Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/ Control rod travel mm 7		⑥	
1000		48,5 - 50,5	47,5 - 51,5												

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550 1300	19.7-20,3 Breakaway	550 (Control lever ca. 49°)	20,0	1300 1350 1400 1440 1540	19,6-20,0 13,6-18,2 6,6-14,0 0 -10,2 0 - 1	480	0	100 200 300 380	9,6-11,5 7,2-10,1 2,5- 5,7 0 - 1	-	-

Torque-control travel on flyweight assembly dimension a = _____ mm Speed regulation At _____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1000	54,5 - 56,5					

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = _____ mm Speed regulation At _____ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 5,7 b

1. Edition

En

PES 6 A 85 D 410 RS2268
RS2268Z

EP/RSV 250-1000 A1 B635DL

supersedes
company
engine

Schlüter
SDMT 110 W6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,2 - 4,5	0,4			
	6	0,7 - 1,4				
200	9	1,4 - 2,3				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever mm 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 52	1000	16,0	without auxiliary spring			ca. 22	250	8,5	980	0
	1050	10,4					150	19 - 21	790	0,3-0,5
	1080	6,0					250	8,2-8,8	400	0,4-0,6
	1050	9,0-11,5					450	1,9-5,2		
	1100	5,0- 7,0					650	0 - 1		
②a	1250	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	82,5 - 84,5*	1040-1050	700	84,5 - 87,5 78,5 - 81,5	100	min. 20mmRw	250	8,5
2268Z 1000	86,0 - 98,0*	1040-1050	500	88,0 91,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

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12.76

G24

624

Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 KAE 8,1 c
3. Edition

En

PES 6 A 90 C 410 RS 2251
RS 2251Z**
..D..

EP/RSV 250-1100 A1 B41
B29
(V9555)

supersedes 5.69, 4,72
company Kaelble
engine MD 215 sT
MD 215:**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery "D" cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,4	9	5,1 - 5,5	
	6	2,5 - 3,4		6	1,6 - 2,6	
	12	10,0 - 11,1		-	-	
*** 200	9	3,2 - 4,1		6	1,9 - 2,9	

Port closing difference between control-rod travel 9 mm and max. 1,1+0,1/5-6° camshaft

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control				
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11			
ca. 64	1100	16,0	without auxiliary spring			ca. 27	250	6,0	1080	0			
	1150	12,1								100	19 - 21	400	0
	1200	6,8	with auxiliary spring				250	5,7-6,3	300	1,2-1,8			
2a	1200	4,0-8,2										350	1,1-3,5
	1250	0,8-3,5										450	0 - 1
	1350	0 - 1											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop		Rotational-speed limit	Fuel delivery characteristics		Starting fuel delivery Idle		Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	97,0-99,0	1140-1150*			100	ca. 20 mmRW		
Z 1100	78,0-80,0	1140-1150						

Checking values in brackets

* 1 mm less control rod travel than col 2

6.75

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H1

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 b 2

3. Edition

En

PE 6 A 85 D 320 RS2385 EP/RSV 250-1300 A1B514R (1)
250-1200 A1B514R
250- 900 A7B566R

supersedes 8.76
company DAF
engine DF 615 (1)
DD 575 (2)

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15+0,1

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,0 - 1,8				
200	9	2,1 - 2,9				

Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-1300 (1)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 72	1300 1340 1380	16,0 11,2 5,7	without auxiliary spring			ca. 26	250	6,0	400	0
②a	1360 1400 1500	7,0-10,0 2,2- 5,4 0,3- 1	with auxiliary spring				100 250 300 440	19 - 21 5,7-6,3 3,8-4,8 0 - 1	290	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
	1000	54,5 - 56,5 (53,0 - 58,0)	1340-1350*			100	max. RW	250	6,0
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

2.77

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H2

H2

The numbers denote the sequence of the tests

250-1200 (2)

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 72	1300	16,0	*			ca. 26	250	6,0	400	0		
	1340	11,2					100	19 - 21				
	1380	5,7									250	5,7-6,3
	1360	7,0-10,0										
	1400	2,2- 5,4					440	0 - 1			290	1,2-1,8
1500	0,3-1	**										

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)									
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
(2)	With motor DD	575	pay attention to speed and quantity reduction on nameplate!			100	max. RW	250	6,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

250-900

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 57	900	16,0	* without auxiliary spring			ca. 24	250	6,0	600	0		
	930	11,6					100	19 - 21				
	960	6,0									250	5,7-6,3
	950	5,2-9,6										
	970	2,2-6,0					370	0 - 1			370	1,2-1,8
1020	0,3-1,0	** with auxiliary spring										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)									
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
	In accordance with	special nameplate	on pump!			100	max. RW	250	5,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 d

2. Edition

En

PE 6 A 80 D 320 RS 2408 EP/RSV 250-900 A7B566R
250-900A5B566R
250-1250A2B566R

supersedes 2.74
company D A F
engine DA 475

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,15+0,1 (RW9) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,6 - 5,0	0,3			
200	6	2,0 - 2,8				
	6	0,1 - 0,7				

** Port closing difference between control-rod travel 9 mm and 21 = 2,5-3,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-900 A7B566R

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-rod travel deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca. 57	900	16,0	without auxiliary spring			ca. 24	250	6,0	880	0
	930	11,6				100	19 - 21			
	960	6,0				250	5,7-6,3			
	950	5,2-9,6	with auxiliary spring				300	2,4-4,0	370	0
	970	2,2-6,0				370	0 - 1			
	1020	0,3-1								
2a									290	1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
900	930-940*	100	max. RW	250	6				
47,5-49,5 (46,5-50,5)									./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.77

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H4

H4

B. Governor Settings

250-900 A5B566R

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Control-lever deflection in degrees			Lower rated speed		3 Torque control	
1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 42	900 960 1020	16,0 11,0 5,0	*			ca. 19	250	6,0	880	0		
2a	1000 1050 1120	5,0-8,6 1,1-4,0 0,3-1,0	**				150 250 400 540	19 - 21 5,7-6,3 1,5-3,7 0 - 1	400	1,2-1,8		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm³/1000 strokes 2	3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
850	45,5-47,5 (44,5-48,5)	930-940*			100	max. RW	250	6,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

250-1250 A2B566R

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Control-lever deflection in degrees			Lower rated speed		3 Torque control	
1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 52	1250 1320 1400	16,0 11,4 5,0	* without auxiliary spring			ca. 21	250	6,0	1230	0		
2a	1370 1420 1520	5,8-9,0 1,8-5,2 0,3-1,0	** with auxiliary spring				150 250 400 560	19 - 21 5,7-6,3 1,7-4,0 0 - 1	400	1,2-1,8		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm³/1000 strokes 2	3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1000	46,0 - 48,0 (45,0 - 49,0)	1280-1290*			100	max. RW	250	6,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 1,3 b

3. Edition

En

PES 2 A 65 D 410/3 RS 1273 EP/RSV 400-1150 A1B1042L (1) supersedes 8.77
 PES 3 A 65 D 410/3 RS 1274 EP/RSV 400-1150 A1B1042L (2) company Holder
 engine VD 2 (1,3 - 1)
 VD 3 (2,0 - 2)

1 - 2 1 - 2 - 3 (2) ± 0,50
 0 - 90 0 -120-240° (+ 0,75)
 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 6,0 mm RW
 (1,85-2,05) mm (from EDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1	4,2 - 4,3	0,2 (0,3)			
400	+0,1 7,7-7,9	0,9 - 1,5	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1042L (1 - 2)

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9			
loose	800	0,3-1,0				ca.22	400	7,2-7,4	400 with contact		
ca.56 ②a	10,1	1190-1200					100	min.19			
	4,0	1220-1250					400	7,7-7,9			
	1450	0,3-1,7					560-620	= 2,0			
							700	0 - 1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
PE2..	+ PE 3..	(1 - 2)						
1150	42,0 - 43,0 (41,0 - 44,0)	1190-1200*			100	54,5-69,5 (min.54,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

12.77

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H6

H6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 1,3 a
4. Edition

En

PES 2 A 65 D 410/3 RS 1273
PES 3 A 65 D 410/3 RS 1274

EP/RSV 250-1150 A 1 B 1042
EP/RSV 250-1150 A 1 B 1042

supersedes 11.74
company Holder
engine VD 2 (1,3)
VD 3 (2,0)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC) RW 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,7 - 2,0	0,3			
	9	3,2 - 4,0				
200	6	0,4 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-1150 A 1 B 1042

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 64	1150	16,0	without auxiliary spring			ca. 25	250	6,0	1130	0
	1200	10,8					100	19 - 21		
②a	1240	5,6	with auxiliary spring				250	5,7-6,3	300	1,2-1,8
	1220	6,0-10,0					300	3,9-5,0		
	1250	2,6- 6,4					450	0 - 1		
1350	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
PE 2	+ PE 3:	1170			100	54,5-69,5		
1150	41,5 - 43,5							

Checking values in brackets

* 1 mm less control rod travel than col 2

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12.75

H7

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 1,0 a
3. Edition

En

PES2A55C410/3 RS1173,1222	EP/RSV600-2300A9B236D,237D	supersedes	12.71
PES3A55C410/3 RS1174,1233,1226	..B236D,237D	company	Holder
PES2A55C410/3 RS1222	..B1016D	engine	HD 2
PES3A55C410/3 RS1223	..B1017D		HD 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC) RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	2,5 - 3,1	0,3	12	2,9 - 3,3	
	9	0,7 - 1,5		9	1,2 - 2,0	
200	9	0,6 - 1,3		9	0,9 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

..236D

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control			
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3				7	8	9	10	11		
ca.67	2300	16,0	without auxiliary spring			ca.26	600	6,0	2280	0		
	2400	13,0							200	19,0-21,0	1800	0,6-0,8
	2600	5,7							600	5,7- 6,3	800	0,7-0,9
2a		2520	7,4-10,3	with auxiliary spring			800	4,0- 5,0				
		2660	3,0- 5,5						1400	0 - 1		
		3000	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
PE 2	PE 3:	2320	1800	20,2 - 22,2				
2280	18,2 - 19,2							

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.75

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H10

H10

..B237D

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 70	2400	16,0	*			ca. 26	600	6,0	2400	0
	2540	11,8					250	19 - 21		
	2680	6,7					600	5,7-6,3		
	2640	6,4-9,6	**	900	2,8-4,4		800	1,1-1,3		
	2800	1,8-4,4		1300	0 - 1					
②a	3100	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
PE2	+ PE3:								
2200	18,2 - 19,2	2320	1800	20,2 - 22,2					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

..1016D + ..1017D

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 67	2300	16,0	*			ca. 26	600	6,0	1016D	0
	2450	11,5					250	19 - 21		
	2600	5,6					600	5,7-6,3		
	2450	10,5-12,0	**	1000	1,8-3,8		1017D	1,6-1,8		
	2600	3,8- 7,5		1400	0 - 1					
②a	2950	0,3-1,0						2300	1,8-2,0	

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
PE2a									
2300	15,2 - 16,2	2340-2350	1700	18,2 - 20,2					
PE3a									
2300	13,7 - 14,7	2340-2350	1700	18,7 - 20,7					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4
1. Edition

En

PES 4 A 85 ^C 410 RS 2341 EP/RSV 250-1100 A7 B560

supersedes
company Steyr
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4	9	5,6 - 6,0	
	6	2,3 - 3,1		6	2,3 - 3,1	
200	6	1,3 - 2,2	6	0,1 - 0,7		

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
ca. 73	1100	16,0	without auxiliary spring			ca. 25	250	6,0	1080	0
	1130	11,2					100	19 - 21		
	1160	4,5					250	5,7-6,3		
	1140	7,5-10,5	with auxiliary spring				350	0,6-3,2	300	1,2-1,8
	1180	2,0- 3,6					440	0 - 1		
	1260	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	52,5 - 54,5	1110-1120						

Checking values in brackets

* 1 mm less control rod travel than col 2

3.76

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H12

H12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
2. Edition

En

PES 4 A 85 ^C_D 320/3 RS2338 EP/RSV 350-1250 A1 B279R
PES 6 A 85 ^C_D 320/3 RS2339 EP/RSV 350-1250 A1 B279R

supersedes 5.72
company Motori VM
engine W 104SU, 954SU
W 106SU, 956SU

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 + 0,1 mm (from BDC) -RW 9 -

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6 15	1,3 - 2,1 12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control			
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11		
ca. 70	1250	16,0	without auxiliary spring			ca. 27	350	6,0	1230	0		
	1300	11,0									200	19 - 21
	1350	4,2	with auxiliary spring				350	5,7-6,3	500	0		
②a	1320	6,2-9,6							420	1,5-2,6	380	1,2-1,8
	1360	2,1-5,0							500	0 - 1		
	1450	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	53,0 - 55,0	1270			100	103,5-119,5		

Checking values in brackets

* 1 mm less control rod travel than col 2

11.76

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H13

H13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
1. Edition

En

PES 4 A 90 D 410 RS2442, Z EP/RSV 325-1000 A4 B1078D

supersedes -
company O M B
engine CO 3 ..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever mm 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 53	1010	16,0	without auxiliary spring			ca. 21	325	6,5	980	0
	1040	10,0					100	19 - 21		
②a	1060	4,2	with auxiliary spring				325	6,2-6,8	300	0,2-0,8
	1010	ca. 9,8					450	1,5-3,8		
	1060	ca. 4,2					600	0 - 1		
	1080	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	84,0 - 86,0	1040-1050*	600	75,5 - 78,5				
"Z" 1000	86,0 - 88,0	1040-1050*	600	78,0 - 81,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

7.79

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H14

H14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PE 4 A 90 C 421 LS 2157 EP/RSV 200-1000 A1B423R

** Performance and quantity data in accordance with documentation from R B I T.

supersedes -
company Motori VM
engine 413
** A = 103 PS
B = 114 PS
F = 125 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,1 - 6,8	0,4			
	6 15	2,3 - 3,1 13,6 - 14,3				
200	9	3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 55	1000	16	without auxiliary spring			ca. 24	200	6	980	0
	1050	11,4								
	1090	5,8	with auxiliary spring				200	5,7-6,3	250	1,2-1,8
	1050	10,0-12,4								
2a	1100	3,0- 6,4				400	0 - 1			
	1200	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to)		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop		
	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
	1	2	3	4	5	6	7	8	9		
"A"	980	99,0 - 101,0	1010-1030							200	6,0
"B"	980	105,0 - 107,0	1010-1030								
"F"	980	118,0 - 120,0	1010-1030								

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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11.77

H16

H16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

1. Edition

En

PES 3 A 80 D 320 LS 1297

EP/RSV 250-1100 A1 B11

supersedes -
company **Lamborghini**
engine **503 DT**
603 DT

1 - 3 - 2 je 120°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

R 1003/1
R 1003/2

A. Fuel Injection Pump Settings

Port closing at prestroke **2,15 + 0,1** mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,2 - 5,6	0,4			
200	6	2,1 - 2,9				
	6	0,4 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
	2	3					8	9	10	11
ca. 60	1100	16,0	without auxiliary spring			ca. 25	250	6	1080	0
	1160	9,6							100	19 - 21
	1190	5,5	with auxiliary spring				250	5,7-6,3		
2a	1150	9,6-12,4							300	4,0-5,0
	1200	3,8- 6,7					450	0 - 1		
	1300	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
1100	53,5-55,5	1130-1140*			100	64,9-80,9		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.75

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H17

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 2 A 85 C 310/3 RS 1217

EP/RSV 250-750 A7 B164L

supersedes

Same Cassani

PES 3 A 85 C 410/3 RS 1219

EP/RSV 250-750 A7 B164L

company

1152 SA

engine

1153 SA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RW 21 **

Port closing at prestroke 3,7 + 0,05 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,2			
200	6	2,3 - 3,5				
	9	3,3 - 4,3				

** Port closing difference between control-rod travel 21 mm and 10,8-5-6,5 camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control			
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 47	750	16,0	without auxiliary spring			ca. 22	250	6,0	730	0		
	780	11,6									100	19 - 21
	810	5,4	with auxiliary spring				250	5,7-6,3	300	1,2-1,8		
	800	5,0-9,0									350	0,5-3,0
	850	1,4-3,0									420	0 - 1
2a	920	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
730	80,5 - 82,5 (10,8 mmRW)	760			100	129,5-159,5			

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.76

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H18

H11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 4 A 80 D 320/3 RS 1312

EP/RSV 300-1100 A1B11R

supersedes -
company Hürlimann
engine D 115 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,15+0,1 (Rw 9) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,6 - 5,0	0,4			
	6	2,0 - 2,8				
200	6	0,1 - 0,7				

** Port closing difference between control-rod travel 9 mm and 21 = 8,5-9,5 camshaft.

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
ca. 60	1100	16,0	without auxiliary spring			ca. 26	300	6,0	1180	0
	1140	12,0					100	19,0-21,0	330	1,2-1,8
	1180	7,0					200	11,0-13,4		
	1150	9,9-11,7					300	5,7- 6,3		
	1240	0,4- 3,0					480	0 - 1,0		
2a	1300	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	rev/min	3	2	4	5	6	7	8	mm
1080	62,5-64,5	1140-1150*							

Checking values in brackets

* 1 mm less control rod travel than col 2

3.77

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

3. Edition

En

PES 4 A 85 C 320/3 RS 2121
PES 4 A 85 D 320 RS 2423

EP/RSV 300-1000 A 1 B 41 (1)
EP/RSV 300-1050 A 1 B 41 (2)

supersedes 11.64, 10.74
company Hürlimann
engine D 300 (1)
D 310 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 5,9	0,4	9	5,6 - 6,0	
	6 12	1,6 - 2,6 9,4 - 10,4		6 -	2,3 - 3,1 - - -	
200	6	0,4 - 1,3		6	0,1 - 0,7	
	** Port closing difference between control-rod travel 9 mm and 21 = 6-7° camshaft.					

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9	3 Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm rev/min 3						rev/min 8	Control rod travel mm 9			
ca. 56	1050	16,0	without auxiliary spring			ca. 25	300	6,0	1030	0	
	1100	10,2					100	19 - 21			
2a	1150	3,0	with auxiliary spring				300	5,7-6,3	340	1,2-1,8	
	1100	8,4-12,0					350	3,6-4,5			
	1150	2,4- 5,8					450	0 - 1			
1250	0,3- 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		4a Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7					
(1)	ca. 10 mmRW	1020									
(2)	1050	83,5-85,5	1090-1100			100	6,1-7,1				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.75

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H20

1120

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

2. Edition

En

PES 6 A 95 D 420 LS 3024

EP/RSV 375-1100 A 2 B 754 DR
375-1100 A 2 B 763 DR ./.

supersedes

company
engine

Case
A 504 BDT-204PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 \pm 0,1$ min (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,5 - 9,0	0,5			
	6	4,0 - 5,0				
200	15	16,5 - 17,8				
	6	1,4 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

EP/RSV .. 754 DR

1 Upper rated speed rev/min Degree of deflection of control lever v	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
ca. 43	1120	11,8	without auxiliary spring			ca. 20	375	5,9	1100	0
	1150	8,2					150	19 - 21		
	1200	1,8	with auxiliary spring				375	5,6-6,2	400	0,6-0,9
	1140	11,0-12,0					450	1,6-3,6		
	1180	5,2- 7,0					530	0 - 1		
	1260	0,3- 1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	130,5-132,5	1140-1155*	750 650	137,5-141,5 max. 140,5	100	13,7-14,3	375	18-22
(increase by $\pm 1,0$ cm ³ !)			1200	21,5- 27,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

5.75

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H21

H 2A

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV...763 DR

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.43	1115 1160 1220	10,8 7,3 1,2	without auxiliary spring			ca.22	375	6,0	1100	0
②a	1140 1200 1280	ca.10,8 4,7-6,0 0,3-1,0	with auxiliary spring				150 375 450 560	19 - 21 5,7-6,3 2,7-4,1 0 - 1	500	0,1-0,4

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	158,5-160,5	1140-1150*	700 600 1225	161,5-165,5 max. 164,5 11,5-17,5	100	13,7-14,3	375	18-22	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure / increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

1. Edition

En

PES 6 A 85 D 420 RS 2264
RS 2460

EP/RSV 375-875 A 7 B 696 R

supersedes
company
engine

-
Case
A 504 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca. 58	885	13,6	without auxiliary spring			ca. 30	375	8,0	875	0
	930	6,8					100	19 - 21		
	960	1,8	with auxiliary spring			375	7,7-8,3			
	930	6,3-8,0							450	2,0-4,7
②a	960	2,5-5,3				550	0 - 1			
	1030	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to 1 rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
875	97,5 - 99,5	880-895	900	69,5 - 92,5	100	12,7-13,5	375	15,5
			940	11,5 - 19,5				23,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.74

H23

H23

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

3. Edition

En

PES 6 A 85 C 420 LS 2264 EP/RSV 375-1050 A 2 B 521 DR

supersedes 29.10.70, 29.4.71
company C a s e
engine A 451 BD

.. D ... LS 2460

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,1 - 1,9				
	12	7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 40	1070	11,8	without auxiliary spring			ca. 20	375	7,5	1050	0
	1110	7,6					150	19 - 21		
2a	1170	2,0	with auxiliary spring				375	7,2-7,8	500	0,6 - 0,9
	1090	11,3-11,9					450	3,6-5,4		
	1150	4,7-5,8					600	0 - 1		
	1260	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7		rev/min 8	Control rod travel mm 9
1050	76,0 - 78,0	1090-1105*	650	81,5 - 85,5 max. 84,5	100	12,5-13,5	375	15,5-19,5	
			550						
			1150	8,5 - 16,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

8.74

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H24

h124

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

3. Edition

En

PES 6 A 85 C 420 LS 2264
.. D LS 2460

EP/RSV 375-1100 A 2 B 605 DR

supersedes 17.2.71, 28.4.71
company Case
engine A 401 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control				
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca.46	1120	10,4	without auxiliary spring			ca.24	375	6,5	1100	0			
②a	1160	7,2				with auxiliary spring				150	19 - 21	900	0,6-0,8
	1220	2,7								375	6,2-6,8		
	1140	10,0-10,6	450	3,1-4,7	450					1,4-1,7			
	1200	4,4- 5,4	600	0 - 1									
	1300	0,3- 1											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	60,5 - 62,5	1140-1155*	600 500	71,5-75,5 max. 74,0	100	12,7-13,3	375	11,5- 17,5
			1200	6,5-14,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

8.74

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J1

J1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

3. Edition

En

PE 12 A 85 C 610 RS 2141 EP/RSV 200-1100 A 1 B 207,253 D
RQV 250/620- 775 AB 642 L
250/875-1075

supersedes 9.64, 6.67
company Torpedo-Jugoslawien
engine T 509

1-9-4-11-2-7-6-10-3-8-5-12-1
0-15-60-75-120-135-180-195-240-255-300-315-360°
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6 15	2,3 - 3,1 14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

..B 207

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
ca. 60°	1100	16,0	without auxiliary spring			ca. 24	200	6,0	1080	0
	1150	11,0					100	19 - 21		
②a	1180	6,4	with auxiliary spring				200	5,7-6,3	250	1,2-1,8
	1170	6,0-9,5					300	2,2-4,1		
	1200	2,8-6,0					450	0 - 1		
1300	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9		
ca. 10	mm RW	1120								
Carry out adjustment		on engine								./.

Checking values in brackets

* 1 mm less control rod travel than col 2

11.75

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J2

J2

B. Governor Settings

EP/RSV..253 D

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 61	1100	16,0	without auxiliary spring			ca. 25	200	6,0	1080	0
	1150	11,6					100	19 - 21		
②a	1190	6,6	with auxiliary spring				200	5,7-6,3	800	0,3-0,5
	1180	5,2-9,5					350	2,6-4,3	500	0,6-0,8
	1220	2,8-4,9					540	0 - 1		
	1340	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	86,0 - 88,0	1020	700 500	83,0 - 87,0 81,5 - 84,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV 250/620-775 AB 642 Ppe 2141

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	775 790 810 835	12,0-15,8 6,4-12,0 0 - 7,0 0	ca. 48	580 620 650 690	9,5-12,5 6,4-12,5 2,8- 7,5 0	ca. 12	200 250 330 550 670	6,8-8,0 4,9-7,1 3,6-4,0 3,6-4,0 0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
ca. 10	mmRW	790						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 250/875-1075 AB 642

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1075 1100 1130 1170	15,0-19,0 7,0-14,5 0 - 7,7 0	ca. 52	850 900 950 1000	13,5-16,5 9,5-14,5 4,0- 9,3 0	ca. 12	180 330 800 980	6,8-8,2 3,6-4,0 3,6-4,0 0	250 350 800 1075 1120- 1160	0,7-1,8 1,9-2,1 8.2 End (11)

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
ca. 10	mm RW	1105-1115*						

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

J4

J4

En

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4

1. Edition

En

PE 8 A 80 D 320 RS2394

EP/RSV 300-900 A4 B625 DR
300-750 A7 B625 DR
300-750 A5 B796 R

supersedes
company
engine

1 - 8 - 5 - 4 - 7 - 2 - 3 - 6
0 -45 -90 -135-180-225-270-315°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25} (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,6 - 5,0	0,4			
	6	2,0 - 2,8				
200	6	1,0 - 0,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

300-900 A4B625DR

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
ca. 52	900	16,0	without auxiliary spring			ca. 24	300	6,0	880	0
	940	11,0								
	970	6,0	with auxiliary spring				100	19 - 21	350	1,3-1,5
②a	940	ca. 10,6								
	1000	ca. 4,0								
	1100	0,3- 1,0								
						450	0,7-3,3			
						600	0 - 1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
ca. 10	mm RW	910						
Carry out adjustment	on engine							

Checking values in brackets

* 1 mm less control rod travel than col 2

8.77

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The numbers denote the sequence of the tests

300-750 A7B625 DR

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 45	750	16,0	*			ca. 22	300	6,0	750	0
	775	11,3					100	19 - 21		
	800	5,9	300	5,7-6,3						
	780	8,6-11,6	450	0,3-3,0						
2a	850	1,9- 3,7	**			550	0 - 1	400	0,3-0,5	
	950	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)									
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
ca.	10 mm RW		760								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

300-750 A5B796R

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 35	750	16,0	*			ca. 18	300	6,0	750	0
	800	11,0					190	19 - 21		
	825	8,0	300	5,7-6,3						
	750	ca. 10,5	400	2,4-4,0						
2a	825	ca. 5,3	**			530	0 - 1	375	1,2 - 1,8	
	975	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)									
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
ca.	10 mm RW		760								
***	Carry out adjustment on engine										

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4

1. Edition

En

PES 3 A 75 D 310 RS1215 EP/RSV 250-900 A7 B719DL (1)
PES 4 A 75 D 410 RS1215 EP/RSV 250-900 A7 D719DL (2)

supersedes

company

engine

Steyr

WD 308 s (1)

WD 408 s (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,2	0,4			
200	6	1,4 - 2,0				
	9	1,8 - 2,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 60	900	16,0	without auxiliary spring			ca. 25	250	6,0	880	0
	950	10,0					100	19,0-21,0		
②a	980	5,2	with auxiliary spring				250	5,7- 6,3	350	0,2-0,4
	950	8,4-11,0					400	1,3- 3,7		
	1000	3,1- 5,1					550	0 - 1,0		
1070	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 900	61,0 - 63,0	930-940*			100	16,0-16,6		

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.79

J7

J7

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	900	16,0	without auxiliary spring			ca. 25	250	6,0	880	0
	950	10,0				100	19,0-21,0	850	0,1-0,3	
	980	5,2				250	5,7- 6,3	350	0,2-0,4	
	950	8,4-11,0				400	1,3- 3,7			
	1000	3,1- 5,1				550	0 - 1,0			
②a	1070	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(2)									
900	58,0-60,0	930-940*			100	16,0-16,6			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 6 A 95 D 420 LS3024 EP/RSV 375-1100 A2 B799DR

supersedes -

company

Case

engine

A 504 BDT

Pay attention to special setting as per W 400/307 for Case CO.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,0	0,4			
	6 15	4,0- 5,0 16,5-17,8				
200	6	1,5- 2,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.43	1120	9,5	without auxiliary spring			ca.21	375	5,7	1100	0
	1160	5,0					150	19 - 21		
2a	1190	2,0	with auxiliary spring				375	5,4-6,0	500	0,1-0,4
	1140	9,2-9,8					450	2,0-3,5		
	1200	2,6-4,0					550	0 - 1		
1260	0 - 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	94,5-96,5	1140-1150*	800	94,0-97,0	100	134-144		
			700	max. 96,0	375	18- 22		
					1200	15- 23		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.79

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J9

J9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

7. Edition

En

PES 4 A 85 C 420 LS 2263 EP/RSV 375-1100 A 2 B 579DR
.. D ... LS 2459 A 2 B 649DR

supersedes 16.9.70, 17.2.71
Case 29.4.71
company A301 BD 15.2.72
engine 20.7.72
24.11.72

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 43	1120	11,4	* without auxiliary spring			ca. 22	375	7,2	1100	0
	1160	7,4					150	19 - 21		
	1210	2,2					375	6,9-7,5		
2a	1140	11,2-11,8	** with auxiliary spring				450	3,6-5,2	900	0,3-0,5
	1200	4,5- 5,8					600	0 - 1		
1300	0,3- 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min cm ³ /1000 strokes		rev/min cm ³ /1000 strokes		rev/min Control rod travel mm	
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1100	73,5 - 75,5	1140-1155*	750 650	75,5-78,5 max. 77,0	100	12,7-13,8	100	15,5- 19,5	
			1200	6,5-14,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

3. Edition

En

PES 6 A 90 D 420 LS2354
LS2461

EP/RSV 375-1050A2B 723 DR

supersedes
company
engine

Case
A 451 BDT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 5,1	0,5			
	6 12	1,1 - 2,0 8,4 - 9,4				
200	9	2,7 - 3,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
			4	5	6		rev/min 8	Control rod travel mm 9		
ca. 40	1070	13,5	without auxiliary spring			ca. 17	375	7,1	1050	0
	1100	9,8					150	19 - 21		
2a	1140	3,4	with auxiliary spring				375	6,8-7,4	400	0,2-0,5
	1090	13,2-13,8					410	2,0-4,2		
	1150	4 - 6					560	0 - 1		
1220	0,3-1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	111,5-114,5	1090-1105*	800	114,0-118,0	100	13,5-14,5	375	15,25-19,25
	110,5-115,5		700	113,0-119,0 max. 117,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.76

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J11

JAA

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4
2. Edition

En

PE 4 A 90 D 321 RS 2444 EP/RSV 325-1500 A5 B642DR
PE 6 A 90 D 321 RS 2432 EP/RSV 325-1500 A5 B642DR
1 - 4 - 2 - 3 1 - 4 - 3 - 6 - 5 - 2
0 -45 -135-270° 0 - 75-120-195-240-315°
Test with "B-lines"

supersedes 9.75
company Baudouin
engine DF 4, DF 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 - 2,25 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,1 - 3,5	0,4			
200	6	0,5 - 1,2				
	12	5,6 - 6,5				
200	9	0,7 - 1,5				

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV .. 642 DR

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	11
ca. 67	1440	16,0	without auxiliary spring			ca. 24	325	8,7	1300	0
	1520	10,0					150	19 - 21	300	325
	1590	3,6	450	2,7-4,9	600	0 - 1				
2a	1300	ca. 10,3	with auxiliary spring							
	1550	6,2-7,6								
	1630	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min						Control rod travel	
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2			4	5	6	7	8	9
(4 + 6 Zyl.)		1520-1530*							
1300	54,5-56,5			1540-3 mm	1550 = RW less	325	8,25-14,25	325	8,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.78

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J12

112

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 4 A 85 D 210 RS 1286

EP/RSV 300-1150 A 2 B 708 D

supersedes
company
engine

3.74
Brown, England
45 500 31

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,7 - 2,8 mm (from BDC) (2,65-2,85)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	9,8	6,0 - 6,2	0,3(0,45)			
300	(+0,1) 7,0 (-0,1)	0,9 - 1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control				
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 45	1150	16,0	without auxiliary spring			ca. 18	300	7,0	1130	0			
	1210	11,2											
	1270	5,0											
ca. 43	1150	ca. 9,8					100	19 - 21	350	1,2-1,8			
②a	1230	ca. 4,0					300	6,9-7,1					
	1320	0,3-1,0					380	1,8-4,0					
							480	0 - 1					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
800	61,0-62,0 (59,0-64,0)	1190-1200* (1185-1205)			100	114,5-124,5 (111,5-127,5)	300	7,0

Checking values in brackets

* 1 mm less control rod travel than col 2

1.76

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

8. Edition

En

PES 4 A 85 C 420 LS 2263 EP/RSV 300-1000 A 2 B 547 DR
D 420 LS 2459 375-1000

supersedes 19.4.72
company Case
engine A301 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 39	1020 1060 1110	11,4 7,2 2,0	without auxiliary spring with auxiliary spring			ca. 21	375 150 375 450 600	7,5 19 - 21 7,2-7,8 3,6-5,4 0 - 1	1000 800 400	0 0,8-1,0 1,5-1,8
2a	1040 1100 1200	11,0-11,6 3,6- 4,9 0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat Note. changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	69,5-71,5	1040-1055*	600 500 1090	84,0-88,0 max. 86,5 9,5- 17,5	100	12,7-13,3	375	15,5- 19,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.74

J16

J16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 6 A 95 D 410 RS2479 EP/RSV 600-1100 A2B771L,774L supersedes -
RS2500 EP/RSV 400-1100 A7B772L company John Deere
EP/RSV 400-1200 A2B773DL engine 6404 T

Test-pressure line 6 x 2 x 600 Inlet pressure 1.5 bar

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9+0,1^{(+0,15)}$
 $-0,05$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Port closing mark 14° after port closing cylinder 1

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

600-1100 A2B771 L

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 40	1100	9,2	without auxiliary spring			ca. 23	600	5,1	1080	0
2a	1150	6,0				with auxiliary spring				
	1170	3,6	600	4,8-5,4						
	1100	ca. 9,2	700	1,8-3,2						
	1170	4,6-5,6	800	0 - 1						
	1270	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	85,5 - 87,5	1140-1150* (1135-1155)			100	159,0- 179,0	600	5,1
					600	12 - 16		
					1175	21 - 27		

(increase by ± 2,0 cm³!)

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.76

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J17

J17

400-1100 A7B772L

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-rod deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1100	11,0	*			ca. 29	400	6,0		
	1120	7,5					150	19 - 21		
	1140	4,0					400	5,7-6,3		
②a	1100	10,0-12,0	**				500	2,0-4,0		
	1150	3,5- 5,5					630	0 - 1		
	1240	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)									
rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1080	85,5 - 87,5	1110-1120* (1105-1125)			100	159 - 179	400	6,0	
					400	12 - 16			
					1150	14 - 20			

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

400-1200 A2B773DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-rod deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 47	1200	16,0	*	without auxiliary spring		ca. 19	400	5,8	1200	0
	1280	9,1					200	19 - 21		
	1320	5,0					400	5,5-6,1		
ca. 45	1200	ca. 9,6	**	with auxiliary spring			500	3,6-4,1	600	0,5-0,7
	1270	ca. 5,1					750	0 - 1		
	1400	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)									
rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1200	85,5 - 87,5	1240-1250* (1235-1255)	800	92,0-95,0	100	159 - 179	400	5,8	
					400	12 - 16			
					1295	21 - 27			

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

600-1100 A2B774L

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 40	1100	9,2	without auxiliary spring			ca. 23	600	5,1	1080	0
	1150	6,0					200	19 - 21		
	1170	3,6					600	4,8-5,4		
	1100	ca. 9,2					700	1,8-3,2		
②a	1170	4,6-5,6				800	0 - 1	400	0,7-1,0	
	1270	0,3-1,0								

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)											
rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1100	79,5-81,5	1140-1150* (1135-1155)				100	159-179	600	12- 16	600	5,1
						600	21- 27				
						1175					
(increase by ± 2,0 cm³!)											

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)											
rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

4. Edition

En

PES 6 A 90 D 410 LS2355
PES 12A 90 D 610 LS2360
PES 8 A 90 D 410 LS2373
PES 10A 90 D 610 LS2374

EP/RSV 250-1250 A1B623L
EP/RSV 250-750 A7 B623L

supersedes
company
engine

3.74
Motori VM

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 and 21 6,5-7,5°

Port closing at prestroke 3,3+0,1 RW9 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,0 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,7 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1250

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	rev/min	Control rod travel mm	rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11		
ca. 69	1250	16,0	without auxiliary spring			ca. 26	250	5,5	1230	0		
	1290	11,8							100	19 - 21	400	0
	1330	6,6	with auxiliary spring				250	5,7-6,3	290	1,2-1,8		
2a	1330	9,2-11,6									350	0,5-3,0
	1350	2,6- 5,8									450	0 - 1
	1450	0,3- 1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note. changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
ca. 10	mm RW	1270							
Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.79

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J20

J-20

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 47	750	16,0	without auxiliary spring			ca. 22	250	5,5	730	0
	780	11,6					100	19 - 21		
	810	5,4	with auxiliary spring				250	5,7-6,3	300	1,2 - 1,8
	800	5,0-9,0					350	0,5-3,0		
	850	1,4-3,0		420	0 - 1					
2a	920	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9
ca. 10	10 mm RW	760									
- Carry out adjustment on engine											

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

3. Edition

En

PE 4 A 90 D 321 RS 2375 EP/RSV 250-1500 A5 B642DR
 PE 6 A 90 D 321 RS 2390 EP/RSV 325-1500 A5 B642DR
 1 - 4 - 2 - 3 1 - 4 - 3 - 6 - 5 - 2
 0 - 45 - 135 - 270° 0 - 75 - 120 - 195 - 240 - 315°
 Testing with T nozzles and fuel lines 6 x 2 x 600 !

supersedes 9.75
 company Baudouin
 engine DA 4 (4 Cyl.)
 DF 6 (6 Cyl.)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,6 - 5,1	0,4			
	6 12	2,3 - 3,3 7,0 - 8,0				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-1500 + PE 4 A ..

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 65	1500	16,0	without auxiliary spring			ca. 19	275	7,0	1480	0
	1550	10,3					100	19 - 21		
	1580	7,0	275	5,7-7,3	300		0,8-1,0			
	1550	11,4-13,4	400	0 - 2,8						
2a	1600	4,3- 6,6	with auxiliary spring			500	0 - 1			
	1720	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min						Control rod travel mm	
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9	
1400	62,0 - 64,0	1540-1550					275	0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.77

J22

-J22

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 65	1500	16,0	without auxiliary spring			ca. 20	325	8,7	1480	0
	1550	10,7					150	19 - 21		
	1620	2,0	with auxiliary spring				8,4-9,0	300	0,8-1,0	
②a	1500	ca. 10,3				450	1,2-4,5			
	1570	ca. 4,0				600	0 - 1			
	1700	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9
1400	62,0 - 64,0	1530-1540						325	10,25-14,25
								cm ³ /1000	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

2. Edition

En

PES 6 A 85 C 420 LS 2264 EP/RSV 375-1050 A 2 B 667 D
.. D .. LS 2460

supersedes 1.12.72
company Case
engine A 451 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 45	1070	10,7	without auxiliary spring			ca. 22	375	6,7	1050	0
	1120	6,4					150	19 - 21		
	1170	2,6	with auxiliary spring				375	6,4-7,0	800	0,7 - 0,9
2a	1090	10,2-10,8					450	3,2-4,7	500	1,0 - 1,3
	1150	4,6- 5,4					580	0 - 1		
	1260	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	67,5 - 69,5	1090-1105*	650 550	76,5-80,5 max. 79,0	100	12,7-13,3	375	12,5- 16,5
			1150	6,5-14,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.74

J24

J24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

1. Edition

En

PES 6 A 95 D 410 RS2479

EP/RSV 400-1100 A2B768DL

400-1100 A2B769DL

supersedes -

company John Deere

engine 6404 T

Testing with T nozzles and fuel lines 6 x 2 x 600!

Inlet pressure 1.5 bar

Manifold-pressure compensator (LDA) adjustment page 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9+0,1$ ^(+0,15) _(-0,05) mm (from BDC)

Port closing mark cyl. 1 : 14° after port closing

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

400-1100 A2B768DL

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 44	1100	16,0	without auxiliary spring			ca. 21	400	5,6	1080	0
	1180	9,8					200	19 - 21		
	1220	6,0	with auxiliary spring				400	5,3-5,9	450	0,7-1,0
	1100	ca. 9,5					500	3,2-4,3		
	1200	ca. 4,7					720	0 - 1		
2a	1330	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1140-1150*	LDA	0,7 bar	100	159 - 179	100	5,6
1100	85,5-78,5		750	95,0-98,0	400	12 - 16		
				1200	19 - 29			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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9.76

K1

K1

The numbers denote the sequence of the tests

B. Governor Settings

400-1100 A2B769DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 44	1100 1180 1220	16,0 9,8 6,0	without auxiliary spring			ca. 21	400	5,6	1080 450	0 0,7-1,0
ca. 43	1100 1200 1330	ca. 9,5 ca. 4,7 0,3-1,0					with auxiliary spring			
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min 3							
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1100	0,7 bar 87,5-89,5	1140-1150* (1135-1155)	LDA 750	0,7 bar 97,0-100,0	100 400 1200	159 - 179 12 - 16 19 - 29	100	5,6	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure

Pre-setting Dimension 1 = 21,8mm

Pump/governor	Setting	Measurement	Control rod travel-diminution-difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2479 with 768DL and 769DL	0,45	0,14 - 0,16	- 0,1 - 0,2 - 1,5 - 1,7
Switching point (hydr. measurement)	max. 0,76		9 - 11 mm RW
		mind. 0,48	19 - 21 mm RW

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

K2

K2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4

4. Edition

En

PE 6 A 80 C 321 RS 2113
.. D ..

EP/RSV 200-1250 A1B421 D, 440D
EP/RSV 250-750 A7B 468

supersedes -
company Saviem
engine 130 H
Z 6 P

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
200	6	2,2 - 3,0				
	15	11,5 - 12,8				
	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..B 421 D,

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 70	1250	16,0	without auxiliary spring			ca. 25	200	6,0	1230	0		
	1300	11,2							100	19 - 21	1000	0,4-0,6
	1340	5,6	with auxiliary spring				200	5,7-6,3	700	1,0-1,2		
2a	1310	8,0-10,6							350	2,5-4,2	500	1,0-1,2
	1340	4,0- 7,2							550	0 - 1		
	1500	0 - 1										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)	Note. changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9	8	9
1230	1260-1280	700	70,0 - 73,0	100	18,7-19,3	200	(ca. 6)		
		500	67,5 - 70,5		mm RW	13,5-	cm ³		
		1250	mind. 65,0			17,5	1000H		
									./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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12.75

K3

K3

B. Governor Settings

..440 D

① Upper rated speed rev/rnin			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1250	16,0	*			ca. 25	200	6,0	1230	0
	1300	11,2					100	19 - 21		
	1340	5,6					200	5,7-6,3		
	1310	8,0-10,6					350	2,5-4,2		
	1350	4,0- 6,3					550	0 - 1		
②a	1480	0,3- 1,0	**						400	0,5-0,7

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	61,5 - 63,5	1290-1300*	750	58,0-61,0	100	134,5-144,5					
					200	13,5- 17,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

.. B 468 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 47	750	16,0	*			ca. 22	250	6,0		0
	780	11,6					100	19 - 21		
	810	5,4					250	5,7-6,3		
	800	5,0-9,0					350	0,5-3,0		
	850	1,4-3,0					420	0 - 1		
②a	920	0 - 1	**						300	1,2-1,8

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
750	76,0 - 78,0	760				100	129,5-139,5			250	16-20
						780	9,5-13,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps **1A** and Governors

40

VDT-WPP 001/4

7. Edition

En

PES 4 A 85 C 420 LS 2263 EP/RSV 375-1100 A 2B 554 DR supersedes 20.7.72
 .. D .. LS 2459 A 2B 650 DR company Case
 engine A 336BD

Test with case overflow valve!
 Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..554 DR, .. 650 DR

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.39	1120	12,2	without auxiliary spring			ca.17	375	7,7	1100	0
	1160	7,4					150	19 - 21		
	1200	2,4	with auxiliary spring				375	7,4-8,0	900	0,3-0,5
2a	1140	12,0-12,6					450	3,3-5,4		
	1200	4,3- 5,6					580	0 - 1	500	0,4-0,7
	1300	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	80,5-82,5	1140-1155*	750 600 1200	86,0 - 89,0 max. 88,0 6,5-14,5	100	12,7-13,3	375	18,5-22,5 ./.

Checking values in brackets

* 1 mm less control rod travel than col 2

8.74

Testoil-ISO 4113

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K5

KC

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4

3. Edition

En

PES 4 A 85 D 420 RS 2263 EP/RSV 375-875 A 7 B 696 R
RS 2459

supersedes -
company C a s e
engine A 301 BD

Test with case overflow valve!
Pay attention to special governor setting!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,1 - 4,5	0,4			
	6 12	1,1 - 1,9 7,2 - 8,0				
200	6	0,9 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	885 930 960	13,6 6,8 1,8	without auxiliary spring			ca. 30	375	8,0	875	0
②a	930 960 1030	6,3-8,0 2,5-5,3 0,3-1,0				with auxiliary spring				100 375 450 550

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note: changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8	9
	875	97,5-99,5	880-895	900	69,5 - 92,5	100	12,7-13,3	375	15,5-23,5
				940	11,5 - 19,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.74

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Testoil-ISO 4113

K6

K6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 2,0 a

1. Edition

En

PES 3 A 65 D 410/3 RS 1274

EP/RSV 400-1225 A1B1099DL

supersedes -

company

Holder

engine

VD 3

1 - 2 - 3 +0,50
0 -120-240° (+0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,90-2,00 \\ (1,85-2,05) \end{matrix}$ mm (from BDC) RW 6,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1225	7,4-7,5	3,0-3,2	0,2(0,3)			
400	6,0		0,2(0,3)			
1000/500	- - -	C, 4 - 5	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0				ca. 26	400	5,4-5,6		± 0,1
ca. 65	6,4	1265-1275					100	min. 19	1225	7,4
	4,0	1285-1315					400	6,0-6,2	700	8,2
	1450	0,3-1,7					510-560	= 2,0	450	8,9
②a							650	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1225	30,5 - 31,5 (29,5 - 32,5)	1265-1275	1000	27,5-29,5 (26,5-30,5)	100	54,5-69,5 (min. 54,5)		
			500	31,5-33,5 (30,5-34,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.77

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K7

67

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 FOR 4,2 f

1. Edition

En

PES 4 A 90 D 210 RS2505 EP/RSV 350-1300 A0 B677L
.. B790L

supersedes -
company Ford GB
engine Dorset 254 CU

1 - 2 - 4 - 3 je 90°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,50-2,60$ mm (from BDC)
 $(2,45-2,65)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,0	7,0-7,1	0,3(0,45)			
	+0,1					
350	8,4-8,5	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..677L

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 15	350	6,5		
	x	1,7					100	min. 19		
							350	6,9-7,1		
ca. 56		1365-1375 = 10,0					440-500	= 2,0		
②a		1525-1555 = 4,0					600	0 - 1		
		1650 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limitat Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery idle ⑤		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	70,0-71,0 (68,0-73,0)	1365-1375*			100	94,25-114,25	350	7,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.73

Testoil-ISO 4113

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K10

K10

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 15	350	6,5		
	x = 1,7						100	min. 19		
ca. 56	1365-1375 = 10,0						350	6,9-7,1		
	1525-1555 = 4,0						440-500	= 2,0		
2a	1650 0,3-1,7						600	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1250	70,0-71,0 (68,0-73,0)	1365-1375*			100	94,25-114,25	350	7,0		
					Disengagement speed 800-1000/min ⁻¹ (refer also to FOR 4.2c)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 FOR 6,2 a
2. Edition

En

PES 6 A 90 D 210 RS 2506,Z EP/RSV 350-1300 A0 B791L
.. RS 2506,Z

supersedes 7.78
company Ford GB
engine Parent Bore

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,50-2,60) mm (from BDC)
(2,45-2,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	11,0	7,0 - 7,2	0,3(0,45)			
	+0,1					
350	8,4-8,5	0,9 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..791L

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 11
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	
loose	800	0,3-1,0				ca. 20	350	7,1	-
		x = 2,0					100	min. 19	
ca. 56		1345-1355 = 10,0					350	7,5-7,7	
2a		1510-1540 = 4,0					495-555 = 2,0		
		1650 0,3 - 1,7					600	0 - 1	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limit Note: changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1250	70,5-71,5 (68,5-73,5)	1345-1355*			100	94,25- 114,25	350	7,6
1250	66,5-67,5 (64,5-69,5)	1345-1355*	600	43,0-49,0 (41,0-51,0)				./.

"Z"

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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1.79

K12

KAL

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Loose	800	0,3-1,0				ca.20	350	7,1	-	-
	x 0 2,0						100	min.19		
ca.56	1345-1355 =	10,0				ca.20	350	7,5-7,7	-	-
	1510-1540 =	4,0					470-530 =	2,0		
②a	1650	0,3-1,7					600	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9
1250	70,5-71,5 (68,5-73,5)	1345-1355*				100	94,25 114,25	350			7,6
1250	66,5-67,5 (64,5-69,5)	1345-1355	600		43,0-49,0 (41,0-51,0)	Disengagement speed 800-1000/min ⁻¹ (refer also to FOR 4.2c)					

Check values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)								Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	3	4	5	6	7	8	7	8	9

Checking values in brackets
En

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 A 95 C 410 RS2311 RQ 225/1200 AB766L (1)
 .. D.. EP/RSV 250-1200 A5 B584L.. (2)

supersedes 8.73
 company: D A F
 engine: DU 825

Test with overflow valve and "B" lines

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,0+0,1 - RW 9 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,4 - 7,8	0,4			
200	9	3,1 - 3,8				
	9	1,2 - 2,0				

** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ..AB766 L (1)

Checking of slider PRG check rev/min 1		Setting point rev/min 3		Test specifications rev/min 6		Setting point rev/min 7		Test specifications rev/min 9		Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12						
650 (Control lever ca. 49°)	19,7-20,3	650	20,0	1200 1250 1280 1310 1390	19,7-20,0 12,0-17,5 6,5-14,0 0 -10,6 0	590	0	100 250 350 490	9,8-11,7 7,3- 9,9 4,2- 7,0 0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min i		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	cm ³ /1000 strokes/mm 7		
LDA 1000	0,45 bar 99,0 - 101,0		LDA 1000	0 bar 1mmRW less	100	ca. 20 mm RW	
600	77,5 - 79,5						./.

Checking values in brackets

The numbers denote the sequence of the tests

EP/RSV..584L (2)

B. Governor Settings

1 Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.55	1200 1260 1330	16,0 11,7 5,6	without auxiliary spring			ca.22	250	6,0	1180	0
2a	1280 1350 1450	8,7-10,8 2,3- 5,5 0,3- 1					with auxiliary spring			
			250	5,7-6,3	300	0,8-1,0				
				350	2,1-3,8					
						470	0 - 1			

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit. Note: changed to ... rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1200	0,45 bar 99,5-97,5	1210-1220*	LDA 1200	0 bar 1 mm RW less	100	min. 20 mmRW	250	5,0	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure (1)
increasing: (2)

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution (1) difference (2) mm (1)
2311 + 766L	0,24	0,16 - 0,18	- 0,2 - 0,3 - 0,6)1)
2311 + 584DL	0,20 - 0,23	0,27 - 0,31	ca. 0,4 (2)

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 h
1. Edition

En

PE 6 A 85 D 320 RS 2441 MB-EP/MV 80 AA188R
RS 2441Z .. AA188R ./.
Testing with "B" leads - VDT-I-DAF 003

supersedes
company
engine

DAF
DD 575

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,15+0,1 RW9 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	9	4,2 - 4,5	0,4			
	6	1,3 - 2,0				
	12	7,4 - 8,2				
200	9	2,4 - 3,1				

** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

2441 + 188 R

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
	500-480	10	250	9,9	400	5,3-9,2	Push valve			
			325-390*		525	0 -1,0	470 4,5-6,0	with auxiliary spring		
							550 3,1-4,1			
							725 0 - 0,8			

control rod travel test (cols 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	mm cm ³ /1000 strokes
1	2	3	4	5	6	7		8
1000		48,5-50,5	100	Start	ca. 18 mmRW			

Checking values in brackets

10.77

Testoil-ISO 4113

B. Governor Settings

2441 Z + 188 R DAF 6,2 h -2-

3

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mm w.c. 4	Control rod travel mm 5	Vacuum mm w.c. 6	Control rod travel mm 7	Vacuum mm w.c. 8	Control rod travel mm 9	Vacuum mm w.c. 10	Control rod travel mm 11
-	500-480	10	350	9,6	500 600	3,8-7,5 0 -2,2	Push valve 470 4,5-6,0 with auxiliary spring 600 3,5-4,5 800 0 -0,8			

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	mm cm ³ /1000 strokes 8
1000		48,5 - 50,5	100	Start	ca. 18 mm RW			

Checking values in brackets

B. Governor Settings

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mm w.c. 4	Control rod travel mm 5	Vacuum mm w.c. 6	Control rod travel mm 7	Vacuum mm w.c. 8	Control rod travel mm 9	Vacuum mm w.c. 10	Control rod travel mm 11

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	mm cm ³ /1000 strokes 8

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Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

En

PE 6 A 85 D 320 RS 2441 MB-EP/MV 80 AA189DR
Testing with "B" leads - VDT-I-DAF 003 RS 2441Z AA189R ./.

supersedes D A F
company DF 615
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15+0,1 RW 9 mm (from BDC) **

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	9	4,2 - 4,5	0,4			
	6 12	1,3 - 2,0 7,4 - 8,2				
200	9	2,4 - 3,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

2441 + 189R

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
	500-480	10	500	9,9	700	2,0-8,5	Push valve 750 4,5-6,0 with auxiliary spring 750 4,4-5,5 1000 0 -0,6			
	600-675*									

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			Idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	mm cm ³ /1000 strokes
1	2	3	4	5	6	7	8	8
1000		54,5-56,5	100	Start	ca.18 mmRW			
** Port closing difference between control-rod travel 3-4° camshaft.						9 mm	and 21 =	./.

Checking values in brackets

10.77

Testoil-ISO 4113

B. Governor Settings

DAF 6,2g

-2-

3

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mm w.c. 4	Control rod travel mm 5	Vacuum mm w.c. 6	Control rod travel mm 7	Vacuum mm w.c. 8	Control rod travel mm 9	Vacuum mm w.c. 10	Control rod travel mm 11
-	500-480	10	600	9,9	750	2,5-8,4 0 -1,2	Push valve 750 with auxiliary 850 1100	4,5-6,0 3,4-4,6 0 -0,6		spring

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm ³ /1000 strokes 8
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	
1000		54,5-56,5	100	Start	ca. 18 mmRW			

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Torque control travel mm 1	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col. 2	Time at least s 3	Vacuum mm w.c. 4	Control rod travel mm 5	Vacuum mm w.c. 6	Control rod travel mm 7	Vacuum mm w.c. 8	Control rod travel mm 9	Vacuum mm w.c. 10	Control rod travel mm 11

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp. 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control road travel from full-load to idle mm cm ³ /1000 strokes 8
rev/min 1	Vacuum mm wat. col. 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat. col. 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat. col. 8	

En

Checking values in brackets

K21

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 A 90 D 320 RS2386 RQ 250/1200 AB749R

supersedes 6.76
company: DAF
engine: DTD 615

Testing with "B" leads

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,2 +0,1 (RW 9) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	2,9 - 3,9				

** Port closing difference between control-rod travel 9 mm and 21 = 2,5-3,5° camshaft.

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 3			
650	19,7-20,3	650	20,0	1200	19,6-20,0	610	0	150	9,0-11,7	-	-
1200 Breakaway		(Control lever ca. 49°)	1250	15,0-18,8				250	7,1-10,0		
			1300	9,5-15,2				350	4,0- 7,2		
			1380	0 - 9,0				450	0 - 3		
			1480	0 - 1				510	0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1245-1260 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /-1000 strokes 5	Control rod travel mm 6	cm ³ /1000 strokes/mm 7	Control rod travel mm 6
1000	67,0 - 69,0					

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 HOR 1,0 b

1. Edition

En

PES 3 A 55 C 410/3 RS 1174 EP/RSV 600-2400 A9B237DL

supersedes -
company Holder
engine HD 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC) -RW 9 -

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	2,5 - 3,1	0,3	12	2,9 - 3,3	
	9	0,7 - 1,5		9	1,2 - 2,0	
200	9	0,6 - 1,3		9	0,9 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever mm 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 70	2400	16,0	without auxiliary spring			ca. 26	600	6,0	2380	0
	2540	11,8					250	19,0-21,0		
	2680	6,7	with auxiliary spring			600	5,7- 6,3			
2a	2640	6,4-9,6				900	2,8- 4,4			
	2800	1,8-4,4				1300	0 - 1,0			
	3100	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	cm ³ /1000 strokes	Note changed to) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9		
	2200	20,2-21,2	2420	1800	21,7-23,7					

Checking values in brackets

* 1 mm less control rod travel than col 2

12.77

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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L2

L2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 HEN 6,5 c
1. Edition

En

PE 5 A 90 D 412 RS 2247 RQ 250/1300 AB 957 D
1 - 2 - 4 - 5 - 3 je 72°

supersedes -
company: Henschel
engine: HHF 552

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,6 - 7,0	0,4			
	6	2,8 - 3,6				
200	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	1320 1360 1430 1500	15,6-16,0 10,0-14,2 0 - 8 0	620	0	150 250 400 520	7,0-8,1 5,7-7,7 1,9-4,3 0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At 1345-1360

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1300	80,0 - 82,0	600			100	ca. 16 mm RW

Checking values in brackets

11.75

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 FOR 4,2 e

1. Edition

En

PES 6 A 85 D 210 RS 2379

EP/RSV 350-1300 A0 B2030DL
.. B2031DL

supersedes

company

engine

Ford England
Parent Bore 363
87 kW (118 PS)

See FOR 4,2 c!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,50-2,60} _(2,45-2,65) RW 9 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	8,5-8,6	5,0 - 5,2	0,3(0,45)			
350	6,4-6,6	0,9 - 6,5	0,2(0,4)			
500	- - -	0 4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0				ca. 25	350	6,0		
ca. 60	1600	0,3-1,7					100	min. 19	1250	+0,1
ca. 60	7,5	1370-1380					350	6,4-6,6	730	8,5
2a	4,0	1470-1500					565-625 = 2,0		500	9,0
							650	0 - 1		9,2

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	51,0 - 52,0 (49,0 - 54,0)	1370-1380*	500	44,0-46,0 (42,0-48,0)	100	19 - 21		

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

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3.78

L8

L8

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4
1. Edition

PES 4 A 90 D 410 RS 2442 RQ 275/1300 AB994L

supersedes -
company: OM-Brescia
engine: C03/130

Setting of check switch at
1480-1490 min⁻¹ - lamp must light up!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,15-2,25}
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	11,7 (+0,1)	8,0 - 8,2	0,2(0,35)			
275	8,3-8,5	1,5 - 2,1	0,2(0,3)			
650	- -	C 4-5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
900	15,6-16,4	900	16,0	10,7	1345-1360	275	8,5	100	min.10,0	1300	11,7-11,8
-----	-----	-----	-----	4,0	1490-1500	-----	-----	275	8,4-8,6	650	12,2-12,4
1300	Breakaway	-----	-----	-----	-----	-----	-----	690-730	=2,0	500	12,4-12,6
1600	0 - 1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Torque-control travel on flyweight assembly dimension a = Col. 11-12 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1300	80,5 - 81,5 (78,5 - 83,5)		650	79,5 - 82,5 (77,5 - 84,5)	100	119,25-129,25

Checking values in brackets

10.77

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 HEN 8,2 b
1. Edition

En

PE 6 A 90 D 412 RS 2253 RQ 250/1300 AB 957 D

supersedes
company: Henschel
engine: HHF 562

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5 + 0,1

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,6 - 7,0	0,4			
200	6	2,8 - 3,6				
	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	1320 1360 1430 1500	15,6-16,0 10,0-14,2 0 - 8 0	620	0	150 250 400 520	7,0-8,1 5,7-7,7 1,9-4,3 0	-	-

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1345-1360 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ Control rod travel mm 7
1300	82,5 - 84,5	600			100	ca. 17 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 b 3

2. Edition

En

PE 6 A 85 D 320 RS2376 EP/RSV 250-1300 A1B639R

supersedes 9.74
company D A F
engine DF 615

Testing with "B" leads !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke 2,15+0,1(RW 9) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,2 - 4,5	0,4			
	6 12	1,3 - 2,0 7,4 - 8,2				
200	9	2,4 - 3,1				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 72	1300	16,0	without auxiliary spring			ca. 26	250	6,0	400	0
	1350	10,0					100	19 - 21		
②a	1390	4,0	with auxiliary spring				250	5,7-6,3	290	1,2-1,8
	1360	7,0-10,6					350	0,8-3,5		
	1400	2,4- 5,5					440	0 -1,0		
	1480	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑤ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /100 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	54,5 - 56,5 (53,0 - 58,0)	1310-1320			0	20 mm RW	250	6,0

** Port closing difference between control-rod travel 9 mm and 21 = 3-4° camshaft.

Checking values in brackets

* 1 mm less control rod travel than col. 2

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2.77

L11

L11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 4,7 a

1. Edition

En

PES 4 A 85	^C _D 410	RS2279	EP/RSV 250-1000	A1B524DL	(1)	supersedes	-
		RS2279	EP/RSV 250- 950	A1B669DL	(1)	company	Schlüter
		RS2279Z	EP/RSV 250-950	A1B669DL	(2)	engine	SDM 110 W4 (1) SDMT 110 W4 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,1 - 5,5	0,4	9	4,2 - 4,5	
	6 15	1,3 - 2,1 12,1 - 13,2		6 -	0,7 - 1,4 -	
200	6	0,1 - 0,9		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

524DL

① Upper rated speed Degree of deflection of control lever rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
ca. 50	1000 1020 1050	12,0 9,4 5,0	without auxiliary spring			ca. 20	250	5,5	980	0
②a	1020 1050 1150	8,5-10,2 4,3- 6,4 0,3- 1,0				with auxiliary spring				150 250 350 540

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
980	51,5-55,5	1020			100	ca. 20 mm RW	250	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

The numbers denote the sequence of the tests

669DL

B. Governor Settings

① Upper rated speed rev/rnin Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control				
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 50	950	16,0	without auxiliary spring			ca. 21	250	6,0	930	0			
②a	1000	10,6					with auxiliary spring			150	19 - 21	820	0,3-0,5
	1030	6,5								250	5,7-6,3	400	0,4-0,6
	1000	9,3-11,5	400	1,5-3,6									
	1050	3,7- 5,4	550	0 - 1									
	1170	0,3- 1,0											

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
950	73,0 - 75,0	970	700 500	75,5 - 78,5 68,0 - 71,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

669DL mit 2279Z

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control				
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11			
ca. 50	950	16,0	without auxiliary spring			ca. 21	250	6,0	930	0			
②a	1000	10,6					with auxiliary spring			150	19 - 21	820	0,3-0,5
	1030	6,5								250	5,7-6,3	400	0,4-0,6
	1000	9,3-11,5	400	1,5-3,6									
	1050	3,7- 5,4	550	0 - 1									
	1170	0,3- 1,0											

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤	④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7		rev/min 8	Control rod travel mm 9
950	90,5 - 92,5	970	700 500	92,5 - 95,5 86,5 - 89,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCL 9,5 a
1. Edition

En

PE 8 A 85 ^C_D 410 RS2281 EP/RSV 250-1100 A1 B524DL (1)
EP/RSV 250-1025 A1 B778DL (2)

supersedes -
company Schlüter
engine SDM 110 WB (1)
SDMT 110 WB (2)

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 - je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	②					
1000	9	5,1 - 5,5	0,4	9	4,2 - 4,5	
	6 15	1,3 - 2,1 12,1 - 13,2		6 -	0,7 - 1,4 - - -	
200	6	0,1 - 0,9		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

524 DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 50	1100	12,0	without auxiliary spring			ca. 20	250	5,5	1080	0
	1130	8,0					150	19 - 21		
②a	1150	5,0	with auxiliary spring				250	5,2-5,8	350	0,9-1,1
	1120	8,0-10,6					350	3,1-4,1		
	1150	3,5- 6,0					540	0 - 1		
1250	0,3- 1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1100	68,5 - 70,5	1120				100	ca. 20mmRW	250	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

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B. Governor Settings

778DL

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control		
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
ca. 51	1025	12,0	without auxiliary spring			ca. 20	250	5,5	1000	0	
	1050	8,4					with auxiliary spring	100			19 - 21
②a	1080	3,6						250	5,2-5,8		
	1040	9,0-10,4					520	350	2,8-4,0		
	1100	2,2- 3,7						0 - 1			
	1200	0,3- 1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1025	78,5-80,5	1065-1075*	700	83,5 - 86,5	100	ca. 20mmRW	250	5,5
			500	75,0 - 78,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limitat. Note: changed to ...) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
rev/min 1	cm³/1000 strokes 2		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

3. Edition

En

PES 8 A 80 D 321 RS2429 RQV 300-1500 AB874R
RS2478 RQV ... AB874R, ..945DR

supersedes 4.77
company: Berliet
engine: V 800..

1 - 5 - 4 - 8 - 6 - 3 - 7 - 2
0 -45 -90 -135-180-225-270-315°

Test with "B" lines - set shutoff device to 0.5-1.0 mm CRT!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,5	0,3	9	4,6 - 4,9	
	6	0,2 - 1,5		6	1,1 - 2,3	
200	12	6,0 - 6,8		-	- - -	
	9	1,6 - 2,4		9	3,1 - 3,9	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV .. 874R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
ca. 68	1510	15,0-18,0	-	-	-	ca. 13	200	6,4-8,4	220	0 - 0,9
	1570	11,2-14,9					350	3,5-5,5	400	1,6-2,4
	1630	6,2-11,5					600	1,6-2,7	600	2,6-3,2
	1690	0 - 7,7					800	0-1,1	1510	8,3
	1800	0					900	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	54,5 - 56,5	1540-1550*			100	59,5-69,5 =	2429	
					100	69,5-84,5 =	2478	
					300	7,5-11,5		
					Change-over point 180-250 min ⁻¹			

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.77

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L18

LAP

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1510 1570 1630 1690 1800	15,0-18,0 11,2-14,9 6,2-11,5 0 - 7,7 0	-	-	-	ca. 13	200 350 600 800 900	6,4-8,4 3,5-5,5 1,6-2,7 0 -1,1 0	220 400 600 1510 1500 700	0- 0,9 1,6-2,4 2,6-3,2 8,3 0 1,2-1,5

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1500	44,5-46,5	1540-1550*	1200 900	46,5-49,5 46,0-49,0	100 300	69,5-84,5 7,5-11,5		
					250-180 min ⁻¹			

Checking values in brackets * 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets * 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 5,0 d

1. Edition

En

PES 6 A 90 D 320 RS2320

RQV 200-1400 AB942/2R

supersedes -

company: V o l v o

engine: D 50 B

Test with overflow valve and "B" lines

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0+0,1 - RW 9

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,4 - 6,8	0,4			2,5 + 0,1 ** (2,2-2,9 max.)
	6	0,3 - 0,9				
200	9	2,6 - 3,5				
	9	0,8 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1400 1450 1500 1600 1730	15,0-18,0 10,8-14,6 7,2-12,2 0 - 6,8 0	-	-	-	ca. 12	150 250 350 450 560	6,4-8,0 3,8-6,2 2,2-3,5 0,9-2,2 0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel 9	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
800	46,5 - 48,5	1440-1450*			60	mind. 18mmRW		
					200	5,25-11,25 dispersion max. 1,5)		**ca. RW8,5
						12,25-17,25 dispersion max. 3)		-ca. RW5

Checking values in brackets

*** Port closing difference between control-rod travel 9 mm and 21 = 6.76
1,2 + 0,1 mm camshaft

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113
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L20

L70

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOB 5,0 b
1. Edition

PES 6 A 90 C 320 RS 2320,... RQV 200-1200 AB 751 (1)
.. D .. 300-1200 (2)
RQV 300-1100 AB 743 (3)

supersedes 5.72 BOL 5,0d
company: Volvo-BM
engine: D 50 B (1-3)

Test with overflow valve and "B" lines

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0+0,1 -RW 9 mm (from BDC) ***

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	2	6,4 - 6,8	0,4			2,5± 0,1**
	6	0,3 - 0,9				
200	9	2,6 - 3,5				
	9	0,8 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly RQV 200-1200 AB 751 (1)

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1200	15,0-18,0	-	-	-	ca. 12	100	7,0-8,0	1200	8,0
	1250	10,8-15,2					250	4,9-7,1		
	1300	6,4-12,0					350	2,4-4,5		
	1380	0 - 6,8					450	1,6-3,0		
	1470	0					630	0		
	*** Port closing difference between control-rod travel 9 mm and 21 = 1,2 + 0,1 mm camshaft									

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
-800	42,0-44,0	1210	500	33,5-36,5	60	min. 18 mmRW	-200-1200	300-1200
Z800	30,0-32,0				200	5,25-11,25		
Y800	34,0-36,0				dispersion max. 1,5			
X800	35,5-37,5				300	5,25-11,25		
V800	38,0-40,0				dispersion max. 1,5			
W800	27,0-28,0				1300	12,25-17,25		
U800	55,0-57,0				dispersion max. 3			

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.75

Testoil-ISO 4113

B. Governor Settings

RQV 300-1200 AB 751 (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1250 1310 1370 1430 1530	15,0-18,0 10,3-14,7 5,0-11,0 0 - 7,2 0	-	-	-	ca. 12	200 350 500 600 680	7,0-8,2 3,6-5,8 1,6-3,2 0 -1,4 0	1250	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
Full-load delivery		see page 1!						

Choosing values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV 300-1100 AB 743 (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1140 1190 1240 1290 1380	15,0-18,0 10,2-14,8 5,4-11,2 0 - 7,3 0	-	-	-	ca. 12	200 350 450 580 630	7,0-8,2 3,7-5,8 2,0-3,3 0 -1,1 0	300 480 750 140	0,4-1,5 2,4-3,0 4,4-4,9 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
800	49,0 - 51,0	1110			60	min. 300 5,25-11,25 dispersion max.1,5 1200 11,25-16,25 dispersion max.3	**	

Choosing values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113